The Builder.

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The Royal Academy Exhibition.

PARTICULARLY pleasing it must be to some of our best known and ablest painters to hear so frequently as they do how little the temporary withdrawal of their assistance to it affects the prosperity of an institution, the present reality of which is supposed partly to exist in them; and how safely they may trust in others to support a character not so easily earned formerly as it now is,—perhaps.

Justice calls for a remembrance of the absent as well as acknowledgment of whatever claims the immediately visible may demand: and with no unreasonable wish to moot it, there can be very little doubt left in the minds of those who give consideration to the matter, and care to ask themselves the question, that the present collection does *not* reach the average point of attractiveness of an ordinary Royal Academy Exhibition, let some of the critics say what they may. The members themselves were never less conspicuously represented; and those upon whom has devolved for some time past the honour of supporting, to a great extent, its "*prestige*," — in fact, the younger and rising professors, who, from constant association, are almost considered a part of it,—though showing no deterioration or slackened industry,—have not been fortunate in selecting themes whereon to exercise their abilities, and consequently excite no proportionate amount of interest for a vast outlay of hard work and school knowledge.

Putting aside two most remarkable instances for exception—Sir Edwin Landseer's wonderful epitome of all the dread and supposition that can deter future Arctic explorement; and Mr. John Phillip's admirable Spanish episode,—there is little to impress a strong recollection upon the most retentive memory. The prevailing deduction must be, that to attain the very considerable amount of power manifest in innumerable instances, must monopolize all the attention and intention of our painters, leaving no time for consideration of how they may most advantageously expend it, until at last they become very misers of manipulation, — if they can be called such who make no secret of their hoard,—and love the coin for the coin's sake, and not for that of which it puts them within reach.

However, to repress anything like a feeling of dissatisfaction, heightened by disappointment at not finding some half-dozen achievements that rumour had asserted were forthcoming to enhance the value of this year's collection, we very gladly recognise in (51) "La Gloria: a Spanish Wake," J. Phillip, R.A., a production of such superlative excellence as will atone for much: painted as well as he always paints,—and he is of those few to whom pencil and palette are as pen and ink to the many,—means of expression in an extra-fine handwriting. The subject is one of the most sympathetic, as well as fruitful, he could possibly have chosen. The pet of a gipsy tribe has suddenly died; suddenly, apparently, from the little we see of the round face, with no signs of the alteration that would betoken long ailment; and with the national superstition of certain glory awaiting one so early called, the bereaved are endeavouring to persuade themselves; and less successfully still the poor, beautiful, woe-stricken mother, whose instincts rebel at the assumption, that they ought to rejoice at, rather than deplore, the severance: women with swimming eyes are singing gay melodies, accompanying the dancers, who, more mindful of the necessities of life, are amusing the crowd. It would require a chapter, and a long one, to dilate fully upon the qualities that distinguish this production, which may be fairly classed with the best of all schools, not only for colour and perfect execution, but for unaffected sentiment and dramatic force.

If it were desirable to point a moral and prove the worth of selection, of quality above quantity, and how unlimited is the power of cultivated genius, where could be found a more cogent exponent than Sir Edwin Landseer's (163) "Man proposes, God disposes?" It shows how small means may be made to tend to a great end. There is more human interest attached to this singular epic, more eloquent appeal to sensibility in this representation of two hideous polar-bears, than in most of the attempts at narrative with less ugly actors; as, sprawling over the slippery lumps of ice in their ravenous haste to discover what man's effort has failed in discovering,—the wherewithal to keep life and body together,—they painfully illustrate, besides the maxim that gives its name to the picture, the proverb that one creature's loss is another's gain, and much more for reflection.

Accepting Mr. F. Leighton's classic treatment of (194) "Dante in Exile" as the right one, it must be pronounced to be a noble picture, and a most praiseworthy application of natural gifts, as well as acquired power; though it may be objected, by those who prefer the warmth and animation of reality, that this power is made too subservient to an excessive love of elegance. (217) "Orpheus and Eurydice" and (293) "Golden Hours," by the same, are, like many preceding them, very charming in their super-elegance; rather inanimate, but not lacking warmth of a kind.

With nothing more important from Mr. Millais, R.A. elect, to contest their excellence, his portraits of children will sufficiently sustain his high reputation, and justify his late election to the full honours of the Royal Academy; they are painted with so much combined vigour and delicacy. (13) "My Second Sermon" will challenge favourable comparison with its prototype; and if the poor little duchess did succumb to its soporific influences, and behave not quite so well as on the first occasion, affection is more secured than ever, for the world does not care much for *very* good little people. (289) "Leisure Hours" is another exquisite portrait picture—the children a little over-dressed. And what a lovely little bit of natural childlikeness (176) "The New Dress," by Mr. J. C. Horsley, A., presents. Such truthfulness is seldom found accompanied by the refinement that distinguishes this realization. (100) "Within the Convent Walls" will not add greatly to the fame Mr. A. Elmore, R.A., enjoys as a depictor of nunnery life and nuns. So many far prettier specimens have emanated from him, and some so pre-eminently less presentable from other sources, that success would appear to depend entirely upon the extremes, and to have no chance in the mean. (424) "Excelsior," by the same, evinces in some degree his characteristic and beautiful method of painting, but has no recommendation beyond that which a half-length study of his, bearing any title, would be certain to possess.

We break off that we may at once look at the—

ARCHITECTURAL DRAWINGS.

The architectural drawings this year, are only sixty-two in number; but as most of them are large, they cover the amount of space which has of late years been appropriated to "Architecture," that is to say, about half of the south room. Indeed, last year, there were only forty-seven architectural drawings in the catalogue.

The practice of placing close to the ceiling and floor, these drawings, which require minute examination, is still maintained. Amongst the works are some which could be regarded as highly meritorious pictorially, but leaving unsettled the question how far the pictorial or polychromatic, as prominent in architectural drawings, retards by its substitution the appreciation on the part of the public, of the real art-architectural.

Amongst the more striking drawings, are views illustrative of some of the designs for the Albert Memorial in Hyde Park, which were exhibited in the Royal Gallery in the Westminster Palace, and one other design for the Memorial. Mr. C. Barry contributes (759) his "General View," showing "the proposed treatment of the entire site." For this treatment, his design was happily conceived. The building itself was to be cruciform in plan, with a dome. The end of the transept appears roofed in semicircular form, and as having a circular window. The details have a Byzantine character. No. 778 is an interior view of the same designed building, and shows a semicircular vault, with ornament, and subjects in panels, painted on a gold ground, columns of coloured marbles, and the monument at the end. Mr. E. M. Barry's design, shown by a view (768) of the exterior, and one (790) of the interior, was for a structure of four pilastraded and turret-crowned piers, and four arches, carrying a dome, the panels of which were to be filled in with green and yellow tiles. The inner dome, or rather cove, carrying a balustrade, was to be richly decorated in colour; whilst on the inside of the outer dome, a painted representation of a procession was to be seen from below. Within this structure, the statue was to be placed. Sedent figures were to be attached to the pedestal of the statue; whilst in each re-entering angle of the structure was to be a winged figure. The design submitted by Mr. P. C. Hardwick is here exhibited in two drawings by Mr. F. P. Cockerell. One of them (802), shows the general arrangement of the site, with terrace-gardens and accessories; and the other (796), the statue itself, with the pedestal and subordinate sculpture, of which there is a profusion. The statue of the Prince would have been gilt: the other sculpture would have been bronze, with gold background apparently; a dado and plinth would have been of red marble, and the mouldings of white marble. That the effect here expected could be permanent in the open air, is very doubtful. In bronze alone, the London statues fail sadly. Mr. Cockerell's work in the drawing of sculpture, and the classical ornamentation of accessories of a building, shows that he is worthy of his name. In the general arrangement, effect of the group would have been diminished by contrast with the expanse of terraces. Mr. Scott, though he does not exhibit his accepted design for the monument, shows in several drawings his "Hall of Science," "one of the alternative designs offered" for the Memorial (776, & 779 to 781). In general arrangement, the building is simply four semicircles on plan, connected with a central space, which is covered by a dome, and surrounded by an ambulatory or cloister, to which are attached a porch and some other accessories. The windows are all round-arched, with shafts and sub-arches. The general details are a mixture of Early French,

Lombardic, and Byzantine. The dome, however, which is pointed, helps to give to the design somewhat the character of an Indian tomb. The sectional view of the interior of the building, displays some excellent ornamentation in colour and gold.

The last design for the Memorial, to which we alluded, is by Mr. Fergusson. Its main features are a structure of four arches, on a general square plan, crowned by a dome; and four smaller structures, also domed, but each having the entablature and dome carried by square piers or *antæ*. The arrangement thus far described, resembles that of the design of Mr. E. M. Barry. The details, however, are very different; and they have that attribute which not merely is not inconsistent with the highest merit, but must necessarily pertain to the art we desiderate, namely, that they cannot be easily described in words. We may say however that the arches being semicircular, and having nook-shafts, and ornamentation in the "orders" of the heads, show that the designer has made some use of Norman and Lombardic examples. Each angle of the building is splayed and moulded, and has a nook-shaft which carries two truss-formed projections, breaking the cornice; which therefore overhangs slightly, and not exactly so as to reconcile us to a splayed form of the angle as contrasted with usual rectangular form. However, the trusses and angle of the cornice, considered apart from the overhanging, are the best features of the design. The dome, of masonry, has some effective ornamentation of moulded ribs and horizontal lines. It is terminated by a finial, resembling that of the monument of Lysicrates, which bears an allegorical figure. Coloured marbles are profusely employed, as in the shafts; and the sculpture of the frieze has a blue background. These backgrounds, if painted, are not worth two years' purchase in the London atmosphere: witness the case of the British Museum pediment, and the more recent painting of the frieze of the Athenæum Club, which no one could now discover to have been painted some very few years since. Square piers in the four small domed-structures are placed one at each angle, and two others in each front, each one next to the angle. Novel ornamentation may be found in these smaller structures, as in the central shrine; but there is something wanting in the proportions of parts, which it is easier to recognise than describe. Generally, Mr. Fergusson has succeeded in showing, supposing that to be his object, that there is no reason why details in new works, should be simply reproduced; but he has at the same time allowed us to see that the teaching of old models could have contributed much to his design, and led to higher appreciation of result.

The conspicuous drawing in the room is Mr. Scott's "Design for the New Foreign and Indian Offices, as in the style desired by the Architect" (786). This drawing, Mr. Scott has made his diploma work "deposited in the Academy on his election as an Academician." As drawing, we must say it is not worthy to be compared with the drawings which Mr. Scott sent in the original competition. It is splashily coloured. However, the intention in the details can be made out. The architect has done well to leave on record his original ideas. Could the opinion of enlightened posterity, upon the design carried into effect and the design which was only made, and upon the whole affair of the Government Offices, be expressed, we should be amused; and "the authorities" in these matters might be benefited. Without saying whether the design should have been Gothic, or of another character, we apprehend that the details of the building now in progress are not improving as the work goes up. There are faults in them which, Italian though the style be, the study of *Gothic* architecture should have made impossible. In the design in the Academy, on the other hand, the architect is evidently master of his details; and, were we to accept the choice of Gothic, there would be little to displease us, except the form of the termination of the tower with saddle-back roof, wherein Mr. Scott always seems to us uncouth as well as mannered.

The most important subject illustrated in the Architectural Room, however, is the Thames Embankment. Mr. Bazalgette, who last year exhibited views showing proposed arrangements of the steam-boat piers, and of the gardens in front of the Adelphi, this year shows us four drawings (762, 763, 788, & 797) all of steam-boat piers or landing-stairs. Those of the designs which are for the same piers as he exhibited designs for, last year, are modified, and in accordance with our views as to some important particulars.* But they are yet sadly deficient, and even more than they were, in art; and must be considered as not at all worthy of the positions and the opportunity, and not calculated to contribute to the architectural character of London. In the steam-boat piers at Waterloo Bridge, one above the bridge and the other below, Mr. Bazalgette has united the piers and the embankment with the arch, instead of having the piers connected with one another, through the arch, by the roadway, as was the objectionable arrangement of last year. Moreover, pedestals all now support something. But whilst correcting certain defects which we specified, he has done nothing else to give a character of art to the piers and landing-stages. It is not sufficient to introduce sculpture, and to place for the support of each group, a blank cube of granite: but there is positively nothing more than this sort of treatment in the Waterloo Bridge piers. In the design for the Temple steam-boat pier and landing-stairs, there is just enough design in one portion of the balustrading, with the supports for candelabra, to explain the difference between architectural art and absence of it. Also there is some ornamentation, though not of a high class, to pedestals; and to parts of the embankment or steps, by lions' heads and rings. But the centre of the composition is a gateway not a bit different to what may be seen in any book of tasteless designs of the end of the last century. The steam-boat pier at Westminster Bridge, though plainer than the others, seems likely to be in the best taste. The character of the mouldings at the Westminster Palace-terrace and landing-stairs appears to be repeated in it. "York Gate," at present standing at the end of Buckingham-street, will be removed, and rebuilt, "arranged to form an entrance to landing-stairs between Westminster and Charing-cross Bridges." A square landing will be placed in front of the centre of the gate, having steps right and left, and carried by an arch; but comparing what is shown in the drawing, with the ruined platform or steps on the river bank, we fear that difference will be found from features that originally conduced to the effect of the whole highly-estimated example of Inigo Jones's talent.

Mr. E. M. Barry, besides the drawings we have mentioned, has several others. Amongst them is a view (767) of "Proposed New Refreshment-rooms for the House of Commons." The room shown, has a central waggon-headed wooden vault springing from a cornice-moulding, carried by hammer-beams, rising from wooden shafts between the windows. The spaces between the timbers are coloured blue. The same architect exhibits a view of his Charing-cross Hotel, now erecting (777). The drawing does not make the red terra-cotta shafts to the chimneys so prominent as they are in the structure itself. The building has five stories between the pavilions of the ends, besides two stories with dormer-windows in the roof. The top story of all appears to have a continuous balcony, or deep gutter, the face of which is ornamented in party-colour. The details, in a modified Italian form, are some of them very good, whilst others are not so. Good features, besides those of the chimneys, are the deep recession of the window openings of the pavilions, and the nail-head ornamentation at intervals in the brickwork. Defects of the building are the use of cement for many of the members intended to be decorative, and the unsightly feature of each porch of entrance, a segmental arch to the centre opening, carried by columns. Spire-capped square turrets to the angles of the pavilions, and larger quadrangular masses with very high-pitched roofing, are features in this design; as they are becoming in many buildings of the day. Generally, as an experiment in decorative application of different materials, terra-cotta especially, the building will deserve particular attention. The Cross to be erected in front of the hotel and station entrance, and intended to be a "restoration of Charing Cross," is not shown in this view; but it is the subject of another drawing (807). This latter is not put forward by the architect, as displaying more than general effect: the details have been considered in preparing the working drawings, and will no doubt be found in some parts earlier in character of date than details in the exhibited view. In general character and details the work may be said to resemble most, Waltham Cross. Certain red granite shafts and panels, shown in the drawing, are now to be omitted. Although we have no doubt that the work will, in Mr. Barry's able hands, be a reproduction of Charing Cross, or as nearly so as is possible, we question the advantage of such reproduction, in the interests of art. Until it be recognised that each new structure should have *something* new in its decorative features, or that otherwise the work cannot be one of art-architectural, we shall make little way. Besides, here, an element of confusion will be brought into the topography and street-nomenclature of London. There will be two rather distant localities called Charing Cross, one the space and a portion of street in front of King Charles's Statue, and the other the space in front of the hotel. Another drawing by Mr. Barry (801) shows the Star and Garter Hotel, Richmond, as it will be, altered, and with the addition that is being made. Here there is a centre of four stories, of alternately arch-headed and square-headed windows, between two square spire-capped masses, and bow-fronted wings. In the centre there are two tiers of dormers in the roof, but in the ends of the building a regular story is substituted for the lower tier of dormers. The chimneys are important features: they are pilastraded in several tiers; and the character of Italian has some of the features of Jacobean as they are in Longleat. Of other new hotels there are two illustrations. Mr. J. Murray shows a view of the Tunbridge Wells Hotel (793). It has a square pavilion at each angle; and each pavilion is terminated by four angle-turrets, and a central *belvidere* story. There is a colonnade to the ground-story, between the wings; and the general character is Italian. A drawing (804) of Mr. Knightley's design for the Cavendish Hotel, Eastbourne, shows that it also will be of Italian character, but with an extended frontage, comprising a central and end pavilions, the latter terminated each by a lantern story or *belvidere*.

Some works of importance in one respect or other, considering the future architectural character of London, remain for notice. The chief of them is (795), "The Ludgate Bridge, now being erected for the London, Chatham, and Dover Railway Company; Joseph Cubitt and F. T. Turner, engineers." The drawing is exhibited by Mr. J. Taylor, jun. The design affords good evidence in addition to that which we have already had, that iron girder-bridges may be made slightly, and, indeed, ornamental. The ends of the girder here are carried by bold cantilevers; and coats of arms are placed on the sides, separating ornamentation of the middle portion of the girder, from the plainer treatment which is that of the ends where strength would seem to be required. Mr. Taylor, in the several stations of the line, has shown the public (if it looks), the advantage, with little cost, of taste, and of the employment of an architect. As the drawing is, of the Ludgate Bridge, the view of St. Paul's is not interfered with. Messrs. Ordish & Le Feuvre exhibit (783), their design for "Proposed High-level Railway Bridge and Viaduct over the Thames, to connect the northern and southern railways below bridge." This design is a modification of the ordinary suspension-principle, by the introduction of obliquely placed chains, each suspending from the tower, or pier, a point in the length of the roadway distant from the pier about two-thirds of the span, and themselves suspended intermediately by perpendicular rods from the catenary.

Two drawings are exhibited by Mr. T. Cundy, jun., showing "Projected improvements upon the Pimlico estates of the Marquis of Westminster," one (760) being "Lower Grosvenor Gardens," "looking north from Belgrave Place," and the other (761) "Upper Grosvenor Gardens," "looking south from Grosvenor Place." The Marquis of Westminster is understood to be desirous of improving the decorative character of buildings on his estate; and there is ample room for improvement. Mr. Cundy, we are told, had photographed a plan of the proposed improvements on another view; but this, for want of space, was not hung.

Mr. J. Murray exhibits a drawing (756) of the "Mansion for Sir Samuel Morton Peto, bart., M.P., Kensington Gardens." All that we can make out, in the elevated position in which the drawing is hung, is that the building is Italian. Next to it is a view (757) of a mansion recently erected near Geneva, by Mr. G. H. Stokes. It appears to be Italian of different character. Amongst the features are strings of flowers suspended on the piers. In the same top-line, is a drawing (754) of "Dundarane Hall, Lancashire," and one (755) of "Clervaux House, Hampshire,"

* *Vide* page 327 in last volume.

both by Mr. J. P. Jones, and Gothic in character. The first, in red brick and stone, seems to have round arches in addition to the high-pitched roofs. The other building, of grey and white stone, and with tiled roofs, appears to have both round and pointed arches.

We have mentioned one design for a bridge of wide span. There is a drawing (771) of the "Bridge in course of construction over the river Mersey, at Runcorn, for the London and North-Western Railway," designed by Mr. W. Baker. We can remember a project for a bridge over the Mersey at Runcorn being mentioned many years ago; and we remember what was deemed the absurdity of the idea. But at that time, the various forms of wrought-and-riveted iron and tubular girders had not been invented; and neither the Menai, nor the St. Lawrence, had been crossed by a railway-train. As well as we can make out, the girder here is of the lattice-form: there are three central spans of the iron-construction, and six arches of masonry or brickwork on one side, the piers founded under water, and four next the opposite shore. Mr. G. G. Page exhibits (805) his "design for the Carlisle Bridge, Dublin." The drawing shows a wide flat span of arch, in iron. On the abutments are pedestals with equestrian statues.

We must dismiss in a sentence, Mr. T. C. Sorby's "The New Town-hall, Bromley" (770), a red brick and stone Gothic structure, erecting for Mr. Coles Child; Mr. W. Wilkinson's "Interior of the New Library at the University Union Society's building" (774), Gothic, with waggon-headed vault, the principal ribs ornamented by perforation to the casing, and with iron-work supports to the gallery, brilliant in blue and gold; Mr. M. D. Wyatt's "Saloon lately erected for Messrs. Purdie & Cowton, 314, Oxford-street" (769), which is effectively lighted through the cove; and the same architects' "Original Study for the New Staircase at Compton Wynniatts, Warwickshire" (811); Mr. P. C. Hardwick's "South-east View of the House to be erected at Rendcomb, Gloucestershire, for Sir F. A. Goldsmid, bart., M.P." (775), ordinary Italian, and below the architect's powers; Mr. S. S. Teulon's "Bestwood, in the county of Nottingham, now in progress of erection" (806) for the Duke of St. Albans, illustrated in our last volume, and looking very red now as coloured, in the drawing; and Mr. G. Sykes's designs (813 & 814) for decorating portions of the north end of the gallery in the South Court of the South Kensington Museum. Mr. Prichard's "Design for a Mansion, about to be built for Señor Don Manuel M. Gonzalez, at Jerez de la Frontera, in the South of Spain" (785) is Gothic of a peculiar character. Pointed arches, Saracenic seemingly, predominate; but *loggie*, boldly corbelled balconies, battlements, an octagonal tower, and a very bold flight of steps, are important features in the design. Also Gothic, but of very different character, is Mr. C. E. Giles's "Hagley, South Carolina" (809), "a design for a house, with private chapel." An octagonal, balconied and spire-capped, structure, with a porch projecting from it, is the main feature.

Two of the designs for the New Exchange Building, Liverpool, are represented at the Academy. One drawing (794) is an external view of the design by Mr. W. J. Green. This design is evidently of superior excellence. It may be said to combine the Venetian Italian, as of Sansovino, with French and Greek elements. High-pitched roofs, and square domical-capped angle turrets, are chief features. The other drawing (803) by Mr. T. H. Wyatt, is an interior view of the News Room. It seems to differ somewhat from his drawing in the Conduit-street Exhibition, explanatory of the design to which the first premium was awarded. In the Academy drawing, the room is shown surrounded by columns, and pilasters, with shafts of coloured marble, bearing arches, and having the height of the arcade divided by a gallery: above the arches, in a cove, are lunettes with sculpture; and from the centre of the flat ceiling rises a domical light.

Mr. R. P. Spiers exhibits a view (789) illustrating the "Design for the Vestibule and Staircase of a Royal Palace," which obtained the Academy medal; but as coloured, it is less pleasing than the drawing in the exhibition in Conduit-street. Mr. W. V. Pickett turns up once more, with a "Series of Designs" (797*) in his "system of iron architecture" concerning which he has wasted some ingenuity. The designs are valuable chiefly as showing that, whilst it may be necessary to consider and not contradict facts of the properties of materials, which heretofore we have taken great pains to show, such expression of harmony is not enough, and that bulk and the idea of strength involved therein, besides breadth of surface, whereon light and shade may have their effect, are essential to the monumental. It is easy for an enthusiast to convince himself of truth of his theory, by shutting out of consideration half the premises. That sort of mistaken course has been long retarding the advancement of architecture and decorative art.

Mr. J. Drayton Wyatt exhibits a drawing (799) of a work of historic interest, "The Tomb of Queen Katherine Parr in Sudeley Castle Chapel, Gloucestershire, being part of the restorations, &c., lately completed there" for Mr. J. C. Dent, by Mr. Scott. The figure, recumbent on an altar-tomb, is placed in a recess decorated with an ogee canopy.

Mr. Ashpitel, who last year exhibited a drawing of the Basilica of Constantine and Maxentius restored from a very old plan among the MSS. discovered by the Prince Consort in the Royal Library, Windsor, has this year, a view (800) of the interior, restored from the same authority; and he mentions that the building covered more than three times the space of Westminster Hall, and was half as high again. The coffers divided by the angle of the groin, so that one-half the coffer is in one severy and the other half in the other, have a strange appearance. Can there be authority for this arrangement?

In former years, church-architecture contributed the larger number of drawings to the Academy exhibition. This year, there are few works of the class. One of the most important of the subjects is "St. James's Church, Calcutta," in course of erection, by Mr. C. G. Wray, which is shown in an exterior view (758) and an interior (782). The details may be described as of plain Early English character; but internally the decoration of the roof-trusses is Geometric-Decorated. The general plan is cruciform, with a western porch and turrets, and a wide porch to each transept. In the usual position of aisles there is an open cloister on the ground-story, and a gallery above, which is lighted by windows, to be closed by *louvres* or Venetian blinds. Mr. T. H. Wyatt exhibits a small perspective view (764) of his church at Fonthill; one (765) of a church at Pembroke, and one (766) of the church of St. Katherine's. Each one of them is of Early Decorated Gothic character. Mr. Street exhibits (808) "The Crimean Memorial Church, now in course of erection at Constantinople," after many changes of intention, ending, it now appears, in rejection of Mr. Burges's design. Mr. Street's design, judging from the exterior, is not equal to the design for which he received a premium, or indeed worthy of him. No. 773 shows a design by Mr. J. L. Pearson, for "proposed sculpture and incised decoration of the narthex of St. Peter's, Vauxhall," where the figures are white on red ground. The only drawing which seems left to be named is Mr. Pearson's "Interior of a Church now building" (810) at Appleton-le-Moors, near Pickering, by Mrs. Shepherd, "in memory to her husband." With the common plan and carved work, it displays ornamentation by coloured bands, which is all the more satisfactory because cool in tone, and has incised work of figures similar to that shown in his other drawing.

THE ARCHITECTURE OF INDIA.

CAN ITS FEATURES BE SUCCESSFULLY BLENDED WITH EUROPEAN STYLES?

It would appear singular, were it not explainable by very obvious facts, that the ancient architecture of India should exhibit closer analogies with the European styles, both Classic and Mediæval, than does the style of Egypt, though belonging to a country which, comparatively speaking, may be considered a closely neighbouring one. These remarks especially apply even to the cave-temples of Ellora, produced under similar circumstances, and upon a similar scale with the cave-temples of Egypt. Yet, while the architecture at Ellora immediately suggests comparison with that of the crypts of our own early cathedrals, the style of the Egyptian works of the same class does not call up any association of the kind, but appears at once distinct and strange—an utterly foreign language of art, presenting no relation whatever with our European Gothic, of any date. The explanation of this apparent discrepancy is to be found in the chronology of the question, the great solvent which may be applied to almost all difficulties in the history of art, though often presenting considerable complications.

In order to explain why the distant art of ancient India more closely resembles that of Europe than does the more neighbouring Egyptian style, a very brief chronological survey will be sufficient. The Egyptians were the earliest people, of whom any record remains, who developed what may be termed a definite school of art. In sculpture as well as architecture the school of Egyptian art, after having seized upon the leading features of natural forms, and thoroughly appreciated their chief characters, and accurately understood their relative proportions, adopted their main outline only. This outline was refined, sharpened, and eventually reduced to set conventional forms, agreeable to the eye-culture of the Egyptian artist; but never *filled up*. In sculpture, the indication of the muscles was never added to the outline of the main form, in the limbs of the human figure. Nor, in architecture, were the *details* of the lotus or other plants, forming the floral decorations of columns and their capitals, ever added to the main external outline. It would almost seem as though the Egyptians had been only furnished with the shadows of objects to study from, and so would only seize the *silhouette*, or general mass of the object, with its terminal outline, without any of the details of those portions of the object not defined by the shape of the shadow. This simile must, however, not be too severely applied. Having once defined the style of art they first aimed at, a peculiar quality of the Egyptian mind caused it to remain obstinately stationary at a certain degree of development, producing that cold though grand severity in Egyptian works, which keeps them distinct from all other styles of art. This feature in Egyptian art resulted chiefly from the character of the people, as moulded by a theocracy, whose religious and political principles, being closely bound together, were necessarily unchangeable. And Egyptian art may, therefore, be strictly termed dogmatic art, as not admitting of either innovation or cavil; but to be practised from father to son by a race of hereditary architects and sculptors, who easily learnt the limited range of those orthodox forms, which were not to be departed from. As the race of priests learned the dogmas of the national religion, so the sculptor, architect, and painter learned the equally severe dogmas of art; and a departure from either would have been considered an equal heresy. A State art went hand in hand with a State religion.

The neighbouring school of art which most closely resembled the Egyptian was that of Greece, in its earliest attempts at refinement. In sculpture, especially, there are Greek remains which exhibit wonderfully strong affinities with the Egyptian school, from which those refinements were evidently derived; but then, Greek art was not encumbered by the dogmatic dictates of an all-powerful theocracy, and, therefore, worked out an eventual development of its own. In an Eastern direction, Assyrian art evidently owed much in its beginnings to that of Egypt,—a region which was then evidently the very core of the spirit of civilization, as Western Europe is now. The sculptors of Assyria, in adopting those principles which they could learn of their Egyptian brethren in the accurate seizure of the grand outlines of natural objects, appear to have followed the somewhat freer treatment found in the mural paintings of Egypt than the severer forms of the sculptures; while, in the figures of their richly-treated bas-reliefs, they soon added the delineations of the muscles to the main outlines,—not in that delicate and truly artistic manner afterwards developed by the Greeks; but with an over-marked and over-emphatic treatment, which is the characteristic of Assyrian art, dealing in exaggerations both of detail and proportion; while, in the Egyptian works, even when colossal, nothing ever seems exaggerated or over-emphasised. This disposition to profusion of detail and exaggerated emphasis is the natural course of unfettered art, at a certain period of its development; and it would doubtless have occurred in Egyptian art itself could it have received the stimulus of foreign superiority or rivalry without being crushed, as the art of Egypt eventually was, by foreign invasion and domination.

Assyrian art was doubtless the first step towards that kind of ancient Indian art with which we are best acquainted, and which, whether any national Indian style worthy of

the name of art preceded it or not, is, in the main, the earliest kind of art produced by the Indian races of which any examples remain.* It was through Assyrian art that the modifications afterwards produced under the subsequent ascendency of Persia were created, in which many of the special forms distinguishing the architecture of India were first developed,—such as the bracketed capital—the slender column, enriched at certain distances by bands of ornament—the deep and decorative base, made as important as the capital—and, perhaps, also the pointed arch, varied by many varieties of outline and enrichment. Hence the national Indian architecture, as we know it, was derived originally from the Egyptian, through the medium of the Assyrian and Persian styles, after several successive modifications, and more especially *complications*, which are the necessary consequence of long-continued development when accompanied by successive foreign influences; through all of which, however, both the sculptured caves of Ellora and the temples of the Ganges have preserved strong hereditary lineaments of those monuments of Egyptian greatness which still excite the wonder of the art-student on the banks of the Nile.

Our own Mediæval architecture, derived in a similar manner and by a similar process from the same parentage, has necessarily more affinity with the features of styles contemporaneous with its own, and derived from the same source, than with the features of their original and mutual parent; and this is rendered the more plain when we consider that the course of Egyptian art-influence in the West was entirely analogous to that worked out in the East. The Greek and Roman schools of art, though later styles, exactly corresponded in method of development with the Assyrian; introducing, especially in the Roman period, more abundant detail, and a sumptuous though yet severe kind of richness of general treatment. The Byzantine, taken as the next Western modification, corresponded in degree (though not in time) with that of Persia in the East, exhibiting greater intricacy of parts and more elaborate finish, but losing more and more of the original colossal grandeur as well as simplicity of the parent style. Then grew up, in successive phases, the various modifications called Gothic, exhibiting all that intricacy, extravagant profusion of ornament, and structural complication which likewise distinguish the Mediæval structures of India. Here, then, we have clearly established, not only the affinity between the early architecture of England and that of far distant India, as greater than that between English art and that of the comparatively neighbouring Egypt; but also the cause of that affinity, which could not, without entirely changing the course of art history, be otherwise than it is.

It should, however, be observed, that as among the forms and details of the Doric temples, many strikingly distinctive features were retained, which mark the still remaining influence of a national architecture, of the timber-building period—before the existence of Egyptian influence,—and which continued after it;—so, in India, in a few of the very oldest known monuments, similar traces of an original national architecture—very distinct from that of Greece, but also belonging to a rude timber-building period,—are plainly evident; and it is, in fact, the engrafting of these features on imported styles of a more advanced character, or rather, perhaps, their retention as still inherent features, that produces from age to age those well-defined and distinct national styles which, TOGETHER, but not separately, should form the study of the modern architect.

After these preliminary observations, an examination of some of the more remarkable examples of Indian architecture may be advantageously entered upon with the view of ascertaining whether, or not, they present features, details, and even general characteristics, akin to our own national styles, which, treated in our own national feeling, might be skilfully grafted on our existing methods of structure and decoration; serving as one of the means of getting out of the humiliating rut of that merely servile reproduction which is so unwholesomely checking the advance of our young architects, whose works display a vigour that, if not cabined and confined by the trammels of imitation, and the superstitious belief in existing "authorities," would perhaps lead to great results,—and that rapidly.

* A few examples, however, exist, which possibly belong to a primæval Indian style, and which will be referred to in the course of this paper.

The examples it is proposed to examine with this purpose in view are to be found in the magnificent collection of Indian drawings, by Mr. Simpson, now exhibiting at the German Gallery, in Old Bond-street, and already mentioned in these pages. They have been reviewed also by almost every organ of the press, which tends to render them more generally known; and so all the better suited as examples to illustrate the theories put forward in the present essay.

The first example to be referred to is one which, in all probability, exhibits the characteristics of an original Indian architecture, belonging to a time immediately following the timber-building period,—a time preceding the importation of those foreign influences which have produced the more recent styles. This example (No. 22 in the catalogue of the drawings) represents the gateway of the Bhilsa Tope, possibly one of the oldest architectural edifices in India, occupying the summit of a hill covered with Buddhist remains. According to Cunningham, as quoted by Mr. Simpson in his catalogue, who opened the tope some years ago, the period of its erection may date as far back as 443 B.C. These topes can scarcely be considered in the light of temples, as they appear rather to be gigantic reliquaries, in which were preserved objects of religious veneration, too sacred for the eye of the worshipper, there being no entrance to the interior cells in which the relics were deposited; the form of adoration consisting in the circumambulation of the building, and the muttering of certain prayers. For this purpose a paved passage-way surrounding the temple-shrine was provided; the passage being inclosed by an external fence, now existing, which, from its peculiar character, forms the subject of the present remarks. This fence, with its four gates, is entirely constructed of stone, though exhibiting all the primæval forms of a wooden stockade, of somewhat elaborate character; one of the peculiarities being a series of transverse rails mortised into the upright ones. In the stone structure, such forms as would have existed in the wood are still accurately carried out, even to the mortising. The huge blocks of stone thus mortised, which form a striking link between the widely-distinct epochs of timber and of stone architecture, are most elaborately decorated with intricate sculptures. Of the four original gates to the inclosure of this tope, only two remain perfect, one of which forms the subject of the drawing under description. The general effect of this entrance may be compared to that of the framework of a great Tudor window, but with the cross stanchions nearly as numerous as the upright ones, forming a number of oblong square openings.

The lower portion of this stone framework seems to be removed to form the gateway, while the upper part remains a fixture, beneath which the worshippers pass, as under a vast four-barred gate, or portcullis, suspended above them. At the period when such stockades or inclosures were of their original material, wood, the lower part of these entrances was, no doubt, made to open, gatewise, or to slide up like a portcullis; and, possibly, the first stone adaptations of these forms were similarly arranged, as remains of stone and marble gates of ancient workmanship are not uncommon in the East. Whether such was the case in the present monument our recollection of Mr. Simpson's drawing does not enable us to determine; or whether bronze gates, long since the booty of foreign spoilers, were fitted in below the heading just described. However this may be, the true way of carrying out the design in the present monument would have been to have the lower portion of the composition of this striking entrance also constructed of stone, formed of upright and transverse stanchions, and opening and shutting by means of gigantic pivots, working in sockets, instead of hinges. The present aspect of the remains of these gates is very singular and striking, the richness of the sculptured details rescuing the effect from that appearance of barbaric rudeness which its likeness to cross-timber work of very primitive character might otherwise suggest. The primeval posts on each side have, indeed, under their architect's hands, become most elaborately enriched columns, the capitals of which are formed of different animals, among the most characteristic of which are elephants, wrought with a skill and character truly surprising. From the external side of these capitals figures stand out laterally, or bracketwise, supporting the short continuations of the lowermost of the transverse stanchions, which extend beyond the upright ones. The transverse stanchions of the upper part of these gateways terminate in this manner, as they are above the level of the rest of the continuous fence, and are, consequently, cut off at a short distance beyond the external uprights, to which they are mortised. Human figures, as stated, project from the capitals of the piers or columns, and support the lower of these projections, while animals, standing in the intermediate spaces of the projecting stanchions, support the upper ones. The bracket-like support projecting from the column on the left of this gate, is a most gracefully-designed female figure, full of a rich Oriental elegance, which (if it has not been heightened by our modern artist in his beautiful drawing) must be considered very remarkable in so ancient a work. The entire surface of these gateways is elaborately carved with emblems of Buddha, and figures of various descriptions connected with what may be termed the ritual of the Tope or Dhagopa. But any written description of this most singular and characteristic stone fence and gateway can but suggest to the architectural student vague ideas connected with the early development of Indian art and the application of general principles in an original and picturesque manner. To form an accurate idea of what the structure may suggest in actual practice, the monument itself, or, at least, Mr. Simpson's beautiful drawing, ought to be seen and carefully examined.

The next examples of Indian architecture in this collection belong to a later period, and are those which correspond to the different early stages of our own Mediæval architecture. In the representations of the Golden Temple, at Benares, the present centre of existing Hindooism in India, good examples of the bracket capital may be studied. In the drawing, No. 18, capitals, formed of four brackets, the angles between them being filled with rich bosses of ornament, produce a sumptuous and appropriate effect. In the case of columns above which two beams meet and intersect, the four projecting brackets fulfil a seemingly necessary function, and appear to spread forth their support, armlike, in a picturesque and effective manner to each beam, on its arrival and departure from its temporary station. In No. 19 there are examples of columns of somewhat Egyptian proportions, and even Egyptian-like decoration, but of a more minute and profuse character, founding, by combination, a distinct and new style, as suggested in the preliminary observations. But the most striking examples of the bracket capital occur in the Vihara or cave-temple at Ajunta. These are only double-bracketed capitals, the double brackets extending on each side to near twice the diameter of the shaft, and nearly meeting those of the next column; producing, when the line of columns is seen, in front, and from a certain distance, the effect of a series of flattened arches, constructed upon some entirely novel principle.

Another cave-temple at Ajunta (No. 48) is very remarkable for the general richness and completeness of its details, and especially to be distinguished by its lofty arched instead of flat roof, cut out of the solid rock, but made to imitate such a roof as it would appear if constructed of wood. This is another and much later example of the lingering predilection to continue the old sacred forms of the primeval wooden structures, though the material come into general use was stone, the capacities and general structural qualities of which were so different. In the Buddhist cave at Karli this feeling for the characteristic forms of the old wooden structures is exhibited in a still more curious manner, the ribs of the roof being actually of wood, *fastened on*. Considerations arising out of these pertinacious struggles to imitate artificially, in stone, the forms naturally occurring in wooden structures, must lead us to be cautious in joining the outcry against so-called "shams;" inasmuch as we see in some of these Indian temples imitations of wood, in stone, producing highly successful results;—a principle which we also find exhibited in the classic Dorian temple of the Greeks, in which all the most characteristic details are stone imitations of wood-work. The interior of this temple (No. 48) is also very remarkable for the excessive enrichment of all the columns of the church-like nave, as well as for the elaborate frieze above, formed of a series of decorative niches, in which are seen, alternately, sitting and standing, figures of Buddha.

The Dhumar Lena cave-temple offers a good example of that kind of columnar supports, short and massive, which are one of the more ordinary characteristics of these works. In the present in-

stance they are formed, to about half their height, of a square shaft of great diameter, either decorated or plain, and with or without a plain or decorated square base. The upper part of the square shaft resolves itself into a capital of peculiarly Indian character,—a character not found in any other school of architectural art. It somewhat resembles a rather squat vase, enriched with ascending and descending flutings, meeting in a central ridge, and other enrichments; but, while its form is so unusual, it is yet, evidently enough, a decoration designed expressly to form the ornamental head of a columnar support, and for no other purpose. The shaft and capital together of this example are a decidedly successful form of columnar support; and plainly point the way to the conclusion that a servile adherence to Classic proportions, or even Gothic ones, need not constitute the sole standards of architectural beauty or strength, nor be accepted as the embodiment of principles from which all departure is dangerous.

Another example of supports of this kind, closely analogous in the principle of their general design to the short massive columns of the crypts of early European cathedrals, is exhibited in the view of the Lanka Cave at Ellora. But while their general principles of design are the same, they are altogether distinct in their details, both of external outline and the feeling and distribution of their ornamentation. Thus showing how unnecessary it is to adhere strictly to the pure columnar form, short or long, thin or thick, which is nearly always followed in the squat and massive supports of our crypts, which have, almost always,—whatever their proportions and decorations,—the shaft, base, and capital, of the Classic column more or less strictly defined; while in the analogous supports of the Lanka Cave, however, the mere columnar feature almost entirely disappears, giving place to a sort of decorative turret. The lower portion of this device is composed, like that of the Dhumar Lena cave, of a square shaft, which, being shorter, is rather a block, or pedestal, resting upon a strongly-moulded decorative base, the base and block together not forming above half the entire height. From the block, richly decorated at its angles, rises a slightly-tapering cone, very profusely ornamented, which is surmounted by a mass, of depressed spheroidal form, having a sharp ridge at its widest part, with decorated flutings above and below, meeting at the ridge; and this upper portion of the supporting turret forms a feature precisely analogous to the capital of a short, massive column. Notwithstanding the distinct character of both the main and minor features of the supports under description, they have a general family likeness and evident relationship to the dwarf columns of our crypts; and it is evident that, by modifying the feeling of the ornamentation, both in subject and treatment, in such a way as to stamp it with a modern European character, a freshness of form, a novelty of proportion, and a different distribution in the arrangement of the ornamentation, might be obtained through the medium of this ancient architecture of India to form the basis of a new style; at all events, the basis for a starting-point towards a more original code of architectural ideas.

To pass from the characteristics of massive dwarf supports to the strongly-contrasting feature of very tall and slender ones, we shall find a graceful example in the delicate columns of the dome of the old Jain Temple of Ajmere, in Rajpootana. This is one of the most ancient and best preserved of the works of the Hindoo period, and one of the completest monuments of its class. The columns are as slender as the slenderest of our Gothic columns of the thirteenth century, though standing singly,—while with us columns of such proportion usually stand in clusters. These Indian columns represent a corresponding architectural phase to that which developed itself with us at the end of the twelfth and throughout the thirteenth century; but, possessing decidedly distinguishing features in their evident, though gradual, tapering from base to summit, and in having, instead of the mere rings of moulding which occur in our thirteenth century columns, a similar number of projecting bands of much more important character, almost approaching in effect the successive galleries of Turkish minarets,—a feature which might be made much of in modern church architecture.

Among the later specimens of Indian art as influenced after the Mahomedan invasion, is the famous Taj at Agra, the tomb of Noormahal, the favourite wife of the Shah Jehan, which travellers generally agree in ranking among the finest buildings in the world. This should not be passed over without notice. It presents many suggestive features for architectural study; the more so as the details of the ornaments bear evidence of European origin, more or less strongly pronounced, which yet have quite a distinct and original character, showing what a vast amount of originality of a certain kind may be obtained by "treatment" alone;—such a kind of treatment as might be applied to all the details of our Gothic cathedrals under the modifications of modern genius of the true architectural type; while the servile reproductions which are being carried out, even as to the varied details of "handling," do not point the way to any real advance.

Several other examples of Indian architecture among Mr. Simpson's beautiful collection of drawings possess equally suggestive features with those referred to in this paper; especially some timber-work analogous to the Swiss style, or that of our timber houses of the fifteenth century, hinting at new and pleasing features; but the present article has already occupied more than its share of space.

THE INTERIOR OF A GOTHIC MINSTER.*

In addressing you upon the subject of the interior of a Gothic minster I feel like the man in the Eastern story, who conjured the Genius of more than colossal dimensions kindly to recompose himself within his moderately-sized jar, so large are the materials and so short the limits of a lecture: in one respect, however, I will endeavour to secure your approval, in consulting your patience by brevity and conciseness.

The word "minster" I use in the following observations in its largest sense, embracing the cathedral, conventual, and collegiate churches; and if some points appear omitted from consideration, the reason will be found in the fact that they were treated on in my paper on Church and Conventual Arrangement, read before the Royal Institute of British Architects, and since published by Messrs. Atchley & Co.

Upon first entering a minster, the impression now is very different from that produced in Mediæval times, when colour was freely used. The red and blue draperies, the shining gold backgrounds common in Mediæval pictures, were intended for churches having such gorgeously-painted walls and pillars, and fainter colours would have appeared weak or been completely lost when submitted to the glowing streams of light which flowed from windows dyed with azure, ruby, and amber.

At St. Alban's we discover traces of successive stages of mural enrichment; representation of joints of masonry in the thirteenth century; rich diapering of the fourteenth, in imitation of stained glass; and in the fifteenth, scriptural or legendary illustrations. At Rochester, the shafts and arches were painted red, green, and yellow: the whole face of the stonework was filled with the same tint, not distinguishing the moulding, both in the nave and transept. At Carlisle, the choir pillars were painted white, and diapered with red roses nearly a foot in diameter, with a gold monogram, I. H. C. or J. M., of the fifteenth century. In Conrad's "glorious choir" of Canterbury the vault was painted like a sky. At Peterborough, the old Norman ceiling—and an imitation of the time of Abbot Wheathampstead, at St. Alban's,—and one at Bolton of the Early Tudor period, are good specimens of their style, to which the labours of Mr. L'Estrange and Gambier Parry will add another at Ely. At Winchester the hooks remain above the base arcade on which the superb suits of tapestry were hung on solemn occasions. At Chichester, the remarkable wall-paintings in the south wing of the transepts, made by Bernardi for Bishop Sherborne, are, I fear, irreparably injured: some were wholly destroyed by the calamitous fall of the tower and spire. At Canterbury, Winchester, St. Alban's, Durham, Exeter, Rochester, Carlisle, and Westminster, we can still point to specimens of mural ornament; and at Exeter, in the panels of the screen, to thirteen oil paintings of the time of Charles I.; and still later—of the date 1728—to some figures in distemper, by Damiani, in the north wing of the choir transept of Lincoln.

The Nave.—The nave was used for the passage of processions and for preaching. The time at my disposal permits me merely to mention that most of the Orders had their peculiar arrangement, the Benedictines preserving the area of their naves clear of the parish church found in those of the Austin Canons; and the Cistercians, holding aloof from the presence of any but of their own body, and exhibiting a stern simplicity, in striking contrast to the sumptuousness of the Clugniac — the Præmonstratensian churches, were usually small and irregular,—and the friars' naves long and narrow, with ordinarily a single aisle for the brethren at sermon-time, and a choir separated from approach by a central tower. But no positive law can be laid down for a certain discrimination at first sight, so frequent are the exceptional instances. Whilst from their constitution the Austin Canons of Thornton, Carlisle, and Christchurch, and the Secular Canons at Hereford and Chichester, left the naves open for the parish altar; the Benedictines, who, at Rochester, Westminster, Chester, St. Alban's, and other places, built a separate parish church, yet tolerated it within the nave at Bodmin and Tynemouth. At Romsey the Benedictine nuns, as at Marrick, allotted the north nave aisle to the townspeople, while they occupied that on the south; and at Romsey the raised step of the platform remained till recently for their stalls. At Lincoln, Bishop Sutton removed the parishioners of St. Mary Magdalene out of the nave. In order to give still further relief at Chichester and Scarborough, and with less uniformity at Manchester, side chapels were erected externally to the nave aisles: for the same reason a large chapel at York, and a church of St. Cross at Ely, were appended on the north, and at Rochester and Waltham, on the south of the nave.

In the nave stood the *pulpit*, which appears to have been moveable, as it ought to be again, after the roodloft was deserted for it. The stationary structures of stone, as at Worcester, 1504, Wells, sixteenth century, and Ripon are not earlier (nor were those of Norwich or Exeter now lost) than the Perpendicular period, and were copied from the refectory and open-air examples, such as those of Beaulieu, Chester, or Magdalen College, Oxford. In most of our cathedrals this traditional use of the nave was observed: at St. David's the pulpit stood in it until 1844. The pulpits of Winchester and Bristol are of wood, and the sixteenth century; that of Hereford Elizabethan, and of the same material. That of Lichfield was the gift of Bishop Hacket. In several instances the naves were very inconveniently blocked up: at Canterbury the south aisle only was available for the public.

At Durham, the Lady Chapel blocks the west front. It contained an iron pulpit, from which a sermon was preached on Sundays, between one and three to a congregation of women, as they were not permitted to pass the "row" with a cross of blue marble, which traversed the west end of the nave. This chapel derived its name of Galilee from being the last station of the procession (Martene, de Ant. Mon. Rit., iv. 155, 204), which took its origin in our Lord's command, given to His disciples after His resurrection to meet Him in Galilee (Rupert. Tuiten., l. vii. c. xxi.; v. c. viii.), and a Durham MS., quoted by Hutchinson, and Macro in his Lexicon, both mention that the Sunday procession was held in memory of the apostles' journey. But the Durham Rites say that it was called Galilee owing to the transposition of the eastern chapel to this site. Martene (u. s., p. 363), defines it to be "the lower end of the church," and in this aspect it may refer to the Galilee of the Gentiles as being the most remote part from the altar. It served as the place of penitents, and also for the burial of the worthy dead, says Ducange; but I may be permitted to suggest that the true allusion, after all, was to the original Hebrew word applied to the outer folding gates of the temple (1 Kings vi. 34; Ezek. xli. 24. Comp. Gesenius on the word "Galilee").

In the nave, the sanctuary chamber occupied the basement of the south-west tower: in the next bay was a chapel of the Bound Rood. Towards the east, in the south aisle also, was the Neville chantry, separated by low walls, on the east and west, and from the nave by a screen of ironwork: it contained the prior's pew when he attended the Jesus Mass. Under the north-west tower was the Saviour's altar, and in the next bay the chapel of Our Lady of Pity, enclosed with wooden screens. In the eastern bay was an organ-loft, used by the choir on Fridays for the Jesus Mass, and beyond it were the large

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* By the Rev. Mackenzie E. C. Walcott, M.A., F.S.A., Precentor and Prebendary of Chichester, read at the Architectural Museum.

folding doors opening into the transept, which were only unlocked at times of procession.

In the nave the great processions were arranged; and at Fountains, at Chichester, and York were two rows of circular *processional stones*, arranged at proper intervals, and allotted as the positions of the superiors and inferiors and singers. At Canterbury two parallel lines were cut in the pavement for a similar purpose. The new pavements were the cause of their disappearance; but at Norwich, on the north side of the nave, is a series of rings, through which, on such occasions, ropes were passed, in order to keep off the pressure of the crowd. Another adjunct which was used at these times was the *tribune* of Winchester, then occupied by musicians; like the *minstrel galleries* of Exeter and Wells. From the former, on Christmas morning, still, at seven o'clock, the choir sings the Old Hundredth Psalm.

The superb series of stained-glass windows of the early part of the fourteenth century at York will give some idea of the enrichment of a Mediæval nave. It also contains a unique feature,—the great beam carved like a dragon's head which supported the font cover, with the effigy of the Christian warrior appropriately facing it. The Norman fonts of Winchester, Hereford, Lincoln, Rochester, Wells, Dorchester, Christchurch, Brecon, and Crowland, and the Perpendicular examples of Norwich, Ripon, and Binham, are well known: it is only remarkable that there are no more, as the right of baptism specially pertained to the cathedral, and in consequence the Pentecostals, St. Chad's pennies and St. Richard's pence, were paid at Whitsuntide, because the cathedral formerly was the only baptistery, and at Easter and Pentecost it was administered (Mayer, i. 49). At Rochester the country clergy paid their cathedraticum yearly on Whitsun-Tuesday, in the cathedral.

At Canterbury, Erasmus mentions the books chained to the pillars for the use of the laity; but there are still earlier instances at St. Alban's, in the twelfth century, of a Bible placed in a painted aumbry, and the best commentators, for the "use of all lovers of Scripture;" and at Hereford in 1369, when Bishop Charlton bequeathed a copy, with other devotional books, for public use in the church. At Lincoln also, in the sixteenth century, a similar practice was observed. At St. Paul's, the standard measured foot was cut upon one of the pillars.

It appears, from several old statutes, that the pillars of the nave formed convenient places for gossipping to the canons out of their choral habit during the time of divine service.

At Durham and Worcester the lower portion of the nave was used as a thoroughfare between the north and south doors in the sixteenth and seventeenth centuries; but at an earlier period statutes in other cathedrals forbid the sale of candles in the cemetery. At St. Paul's the nave seems always to have been from a still earlier period desecrated; whilst at York the gossiping of the vergers in the vestibule outside the rood-screen was frequently prohibited.

The dinnerless lounger was said to be Duke Humphry's guest in the former church, as early as 1400. Bishop Baldock excommunicated persons making the nave a thoroughfare; and in 1385, Bishop Robert forbade buying, selling, and playing at ball; but at the close of the sixteenth century the desecration was something horrible, and only worse than the filth of the floors and the decay of the fabric. Drunkards and vagabonds slept off their drunken orgies on the bench at the choir door; butchers and water-carriers conveyed their wares, and men wore their hats through the aisles; mules and horses were driven across them; tobacconists sold in the nave; seamsters and booksellers plied their trades; a carpenter worked in the crypt; trunk-makers in the crypt disturbed the services; chantries had become cellars, lumber-rooms, and glaziers' shops; choristers, as at Lichfield and Westminster (but less courteous than those of Ripon, who distributed apples to the congregation on Christmas morning), hunted booted gentlemen for spur-money, only less vociferously than beggars pursued the other company; the usurer touted in the south aisle; simony presided on the north; the horse-fair in the central alley; and money was paid on the font. Masked women, rufflers, ballad-mongers, stall-knights, captains out of service, and quacks, haunted the place; the servant waited to be hired at the serving-man's log; the serjeant-at-law received his client at his special pillar; whilst around were seen the merchants' 'change and the fashionable lounge.

In the ordinal of Lichfield, 1197, this entry occurs:—"On Pentecost and the three days ensuing, whilst the Sequence is being sung, clouds are customarily scattered." Architecture and tradition come in to enable us to explain this obscure intimation of an old ceremonial. A circular opening still exists in the centre of the vault of Norwich, as formerly in St. Paul's; and there are similar apertures at Exeter. At St. Paul's, Lambarde, when a child, saw at Pentecost a white dove let to fly out of it, and a long censer reaching almost to the floor, and swung from the west door to the choir steps, "breathing out over the whole church and company a most pleasant perfume." Bishop Pilkington, the Sacrist Rolls of Norwich, and the custom at Dunkirk narrated in Ellis's Letters, in 1662, allude to the ceremonial.

The Crossing.—In passing out of the nave into the choir, we must recal to mind the wonderful buttressing arches of Wells, and the less obtrusive examples of Salisbury, 1395—1415, and Canterbury, 1490-1517, which present remarkable evidences of the skill with which the Mediæval architect could convert times of difficulty into opportunities of adding at once beauty and support to a previous faulty construction, in marked contrast to the hideous contrivances devised at Hereford, Worcester, and Salisbury at a later period.

Rood-loft.—When the choirs were extended into the naves, the rood-screen was placed westward of the crossing, in the second bay of the nave, at Norwich, Peterborough, and Worcester; in the third bay at Melrose, Winchester, Binham, and Westminster; in the first bay at Ely, Gloucester, Tintern, Fountains, Chichester, Christchurch, and Chester. At Fountains, a curious range of pottery was found in connexion with it; but it is very doubtful whether it was designed on acoustic principles, or was part of a system of warming, as charcoal was found in the urns. At Exeter, Lincoln, York, Carlisle, Canterbury, Rochester, Lichfield, and Oxford (and Christchurch, Hants, in late Decorated times), the screen appeared under the eastern, and at Hereford below the western arch of the lantern; but the central tower was at length almost universally regarded as the natural division between the nave and choir, and the screen placed in consequence between its eastern pillars: hence its name of rood-tower at Lincoln and Hereford.

In the early part of the twelfth century, a stone screen, with a central altar of St. Cuthbert, was erected at St. Alban's, stretching between the two second bays westward from the lantern. In the thirteenth century a more magnificent screen was erected, formed so as to enclose this altar, in the next bay westward: it had side processional-doors, and windows pierced in its partition walls. In order to compensate for the limited accommodation afforded by the dormitory, the chapel was furnished above the vaulting with an upper chamber, containing about twelve beds, lighted by windows, and covered by a leaded ceiling. At Wymondham there was a dormitory over the south nave-aisle. In the reign of Edward I. the present screen was erected, the altar of St. Cuthbert standing unenclosed between the two doorways. The second screen at St. Alban's must have resembled the arrangement of the screens of Gloucester, St. David's, and Norwich, consisting of a front and inner wall, separated by a considerable interval; possibly one carried a rood and the other supported an ambon. The screen not only served to exclude draughts of cold air and seclude the choir, but also took the place of the double ambones of the basilica, and from its summit the Gospel and Epistle were read (Martene, de Ant. Mon. Rit., iv. 143, 96). Ciampini dates the desuetude of the ambones from the time of the removal of the popes to Avignon, in 1309. It was called *ambo* (Socrates, lib. iv., c. 5), from its stairs, ἐκ τοῦ ἀναβαίνειν (ab ambiendo quia intrantem ambit!—W. Strabo, c. 5), or *pulpitum* (S. Cypr., ep. xxxiii., xxxiv.) (Quod sit in publica statuendum, ut qui ibi stant ab omnibus videantur. W. Strabo, *u. s.*). The bishops used it for preaching, and the lectors for reading the Epistle and Gospel: in Cranmer's time the latter were read from the pulpit (Works, ii. 156, 501; Grindal, i. 132). The rood-stairs corresponded to those of the ambo. At Peterborough, Adam de Boothby, on his election to be abbot, was carried on the monks' shoulders to the high altar, and thence to the loft, where he was proclaimed (Comp. Martene, de Ant. Mon. Rit., iv. 232; ii. 154, 159).

The Altar of Jesus or Holy Cross (Willis, Mitred Abbeys, i. 320) usually stood below the great rood or cross. At Exeter the Lady Mass at break of day, and at Salisbury the Matin Mass was sung at the rood altar for the convenience of the working people. A lamp burned perpetually before the rood. A common arrangement of the screen was that of a *central doorway between two altar-recesses*, as at Exeter, 1370-95; Chichester, 1447; Lincoln, 1310; Winchester; Chester fourteenth century; Brecon; St. David's, fourteenth century; Norwich, fifteenth century, and Hereford. At Winchester, the choir platform erected over the crypt extends into the nave, and is ascended by superb flights of stairs: it has been suggested that this space was canopied above the lateral altars. At Hereford the vicars received their dole here, and at Exeter offending vicars were compelled to stand during all the canonical hours of a single day and night. At Durham, athwart the east end of the nave, between the western pillars of the lantern, stood the Jesus altar wholly enclosed like a porch, with wainscot-work, at which the Jesus Mass was sung on Fridays, and the Jesus Anthem, led by the master of the choristers and deacons, on Friday nights during the tolling of the Galilee bells after evensong. It faced westward, with a small doorway at each side of the screen which formed its reredos leading into the transept. On the north side were an organ and loft for the singers. Above the screen was the great rood; with St. Mary and John and adoring angels rising over sculptures of the Passion and apostles, and a broad band of folinge. Behind the screen and under the lantern was the clock. The north rood door was only opened for processions. The screen, like that of Chester, was painted with portraits of English kings and worthies. The choir-door was in the screen between the eastern tower pillars, over which were the great organs, used only on chief days, and the pulpit for singing the Nine Sections in the nocturns of principal feasts. Below the left was a form on which men might rest themselves. A tall square stone pedestal stood adjoining the south-east pillar, for the support of twelve cressets, one of which was lighted at midnight during Lauds. At Norwich, St. William's altar was on the north, and St. Mary's, or the Præcentor's, on the south side, enclosed with wooden screens. In the interval between the outer walls stood the altar of our Lady of Pity.

The other arrangement of the roodscreen was that of a *central door set in a wall*, which existed at Gloucester (of the fourteenth century, and destroyed with its pulpit in 1718); Canterbury, 1304; Wells, Decorated; Salisbury; Chester, fourteenth century; Ripon, after 1489; Worcester, fifteenth century; Carlisle and Lincoln, fifteenth century; Christchurch, temp. Edward III.; and York, temp. Henry VI. At Worcester, on the western piers of the lantern, are stone brackets of the *roodbeam*, at a height of 28 feet from the floor. At Canterbury, pilgrims passed up the south aisle of the nave, and through the passage under the platform of the crossing when about to visit the shrine of à Becket or the Martyrdom; so that the choir was positively secluded from the laity, and the door of the screen used only on occasions of high solemnity and processions. At York, the screen is covered with statues of kings: at Hexham, in the fifteenth century, the oaken panels were painted with figures out of the "Dance of Death." At Exeter, the antiphon was sung daily at the screen, and the procession, symbolical of man's journey through this life heavenward, passed through the north gate of the choir to the vestibule of the Lady Chapel, and then by the south gate of the choir near the throne to the high altar: it afterwards traversed the nave and cloisters, concluding before the rood-loft; and if there was no sermon, the procession returned to the altar. Carpets were strewed along the way on great festivals. The altar of the Holy Cross, in this instance, stood in the north wing of the transept. At Chichester, at Epiphany, an image "of the Spirit" was carried round the church by the dean or senior canon, and two vicars. On Whitsun-Monday, the parishioners in the diocese often came to blows about right of precedence, so that Bishop Storey made injunctions, 1478, for order on this occasion, when the Shrine of St. Richard was visited annually. The place of meeting was the choir and the time 10 a.m. by the cathedral clock. Crosses and banners were permitted, but the long painted rods with which the contending parties had hitherto belaboured each other were proscribed, as well as laughing, crowding, and noise. The pilgrims entered by the great south porch and assembled in the choir, and left the building by it, having duly visited "the chancel and

church." The pilgrims came by way of St. Richard's Wyne and the cloisters.

Organs.—This noble instrument was used at Winchester in the tenth century, and at Bury St. Edmund's in the thirteenth century. At a later period, as at St. Alban's and Crowland (Mon. Anglic., ii. 103) there were large organs at the west end of the nave. At Durham there was a pair over the choir door, on the south of the choir, for daily services; and another, "the cryers," on the north side. At Canterbury, in the twelfth century, and later at Winchester, the organ stood in the north wing of the transept in the ritual choir; but at York, St. Paul's, Westminster, Lincoln, Chester, Worcester, on the north side; and at Gloucester on the south side of the choir. After the Restoration, they were removed to the choir screen to destroy wholly the view of the interior. The vicars and clerks in most cathedrals were required to be able to play upon some instrument; and even in 1635, musical instruments were employed at Lincoln, at Westminster, and Exeter after the Restoration, and at Durham in the episcopate of Cosin and Lord Crewe.

We have now to choose for the position of the organ, usually set on the north side of the choir, not the top of the screen, but between a side chapel, an aisle, or the triforium. I only trust we shall have no more wholesale destruction of a beautiful vault, as at Winchester, for mechanical apparatus. Although the lateral position does necessitate a certain amount of loss to the effect of the music, I cannot but consider this unimportant when weighed against the more than compensating advantage of converting a cathedral into a great congregational church. May we see before long the removal of the modern screens of Westminster, Gloucester, Peterborough, Rochester, and Salisbury, although in the later case the ancient screen yet remains to be set once more in position, or used as a reredos. At Bristol, the screen was dated 1541, and that of Durham was later than the restoration.

*The Transept,** usually ill-defined in France and Scotland, is in England a feature of great importance in the ground plan. The early type was that of an aisleless oblong, with a single or double apsidal chapel to the east. We find this chapel existed in each wing at Tewkesbury, Worcester, Gloucester, Pershore, Christchurch, Hants, Bury St. Edmund's, and Norwich. There were two in each wing at St. Alban's. It is not uncommon to find the wings or arms of the transept called aisles, as at Rochester, Gloucester, and Hereford; as in Latin *ala* or *brachium* were used, the former in a constructional, the latter in a symbolic acceptation. This eastern chapel was double-storied at Canterbury, Worcester, Chichester, and Christchurch, Hants, the upper room being apparently connected with the sacristan's department at Worcester and Christchurch, and with the muniments at Chichester. These chapels were often removed and elongated at a later period, or received a complete re-arrangement and new forms.

At Canterbury, Chichester, and Ely, there was a transverse aisle, as at Winchester, and St. Etienne, at Caen, built possibly for the accommodation of chapels of peculiar sanctity and privacy, as well as to afford additional room for altars and shrines. At Chichester, Chester, and Hereford, a wing of the transept was used as a parish church.

In some instances, as at Carlisle, Chester, Rochester, and Bath, the transept is without aisles; but eastern and western aisles were provided at Ely, Winchester, Westminster, Wells, and St. Paul's; and an east aisle was divided into chantries at Durham, Peterborough, Lincoln, Lichfield, Hereford, and Ripon. At Exeter, two large towers were ingeniously converted into a transept. At Sallay, the transept exceeds nave and choir. The beautiful door of Gloucester, with its stooping angels, it is presumed was the ordinary entrance of the pilgrims and of penitents.

The sacristy adjoins either the transept or choir aisle: *the lavatory* used by the celebrant and assistants (Frances, c. xx. 98), remains at Salisbury, Lincoln, Selby, and Ripon. The *furnace* for baking the altar breads may be seen at Canterbury, Bristol, Lincoln, and Chester: at Lichfield the *hooks* for hanging the lamps used in service remain on the vault. The *calefactory* for lighting the censers is still pointed out at Winchester; the *watching-loft* at Lichfield, and the oriel at Worcester, from which the sacristan commanded a view of all the lights; *St. Peter's Well* at York; the *altar of St. Blaise*, at Westminster; and the *beautiful screen* of Gloucester, pierced (like one formerly existing at St. David's) for the exhibition of relics, are interesting features connected with the old arrangements of the revestry, which at Durham was used at ordinations by the suffragan.

A beautiful flight of steps, at Hexham, led to the dormitory, which communicated with the transept at Bristol, Carlisle, Westminster, Tintern, and Beaulieu. A small watching chamber remains at St. Alban's, and the watcher's door opened into the transept at Rochester. At Durham the bell-ringers slept over the revestry; and at Lincoln the searchers of the church, who walked round the Minster at night, after the doors were closed, and the lady bells had tolled forty times, occupied the old watching-loft of St. Hugh's shrine, in the choir transept. Had this admirable precaution existed, York and Westminster would not have been jeopardied in the present century. At Salisbury the vergers slept near the choir (Leland, Itin., iii. 95). In the north wing was a still more interesting sight, the altar of St. Sebastian and Radegunda, to which belonged the fraternity, consisting of 200 poor folk, men and women, who were furnished with books, shoes, garments, and all necessaries, purchased with the money there given, and distributed by a priest and boy attending at it; but, adds the old chronicler sorrowfully, these brotherhoods, by reason of the frequent frauds committed by some, and the ingratitude of others, and their universal variance, were dissolved and broken up. At St. David's, adjoining the north arm, is the chapter-house, on the first-floor of a three-storied building, with the treasury over it. Two centuries ago old people could remember having seen in the former alms apportioned by basinfuls, there not being leisure to tell them: these oblations were made by seamen, passengers, and pilgrims, at the little dependent seaside chapels, and distributed on Saturdays among the clergy then officiating.

In the great transept occasionally we find two large rose-windows, one in each arm, as at Westminster and Lincoln: in the latter instance that on the north was called the bishop's, and the southern one the dean's eye, as representing their several jurisdictions. At St. Paul's, the Lady Chapel had a superb rose-window in the east wall, and one still adorns the Nine Chapels of Durham. At Chichester, at York, and at Winchester, the rose-window occurs in the transept gable.

The choir transept is the Ala Superior of Gervase. It usually marks the termination of the sanctuary, as the main transept marks the entrance of the choir. As Leland calls "the second transept of Salisbury, a light and division between the choir and presbytery" (Itin., iii. 96). This additional structure would not only accommodate altars, but also sick and infirm monks and canons who were permitted to attend in the retrochoir. M. Vitet gives twenty-four examples of this transept on the Continent, and attributes its origin to an Oriental source (Cathed. de Noyon, Monum. Ined. pp. 204, 225). M. Didron likewise refers it to the influence of Byzantium. M. Martin found it ordinarily in churches built before the Ogival period. It came, probably, from Clugny into England. Chapels at Wells, Hereford, and York, form a *quasi* transept. It marks the limits of the choir at Canterbury, Southwell, Lincoln, York, Salisbury, Rochester, Worcester, Beverley. At Canterbury a pair of towers flanked this transept. At Rochester, in the north wing, the doorway of the Sacristan's chamber remains; and in the south wing the well-known archway of the sacristy, with its remarkable series of carvings, a similar design to which was painted at York.

The Choir (*Chorus cantorum*, Gervase, Scarf. ii. 255),—so called because formerly the choir sang arranged in a circle like a crown around the altar (Frances, p. 87),—in the Norman churches extended under the lantern, and sometimes into the nave, which a screen parted off, as at Winchester, Peterborough, Westminster, Norwich, Gloucester, Chichester, Ely. Sometimes it merely occupied the crossing, as at Chester, Hereford, St. David's, St. Asaph, Bangor. But at length the crossing was constituted a separate division, when the choirs were reconstructed and prolonged eastward during the thirteenth century; a solid rood-screen being constructed under the eastern tower-arch to ward off cold draughts of air, and a reredos added behind the altar. This was the case at Canterbury, York, Lichfield, Carlisle, Exeter, and Bristol.

At Canterbury, York, Salisbury, Lincoln, Rochester, Worcester, the choir occupies the space between the main and choir transepts. At Worcester and York, the western and eastern limbs of the church are of equal length. In many churches a deflection on symbolical reasons was given to the ground plan of the eastern arm, which was regarded as the caput or drooping head of the crucified, reproduced in the ground plan. The inclination is ordinarily to the north, and is first observable in churches of the thirteenth and fourteenth centuries: at Christchurch, Dublin, Bridlington, and St. Mary's, York, it was in this direction; but southward at York, Lichfield, Ely, Tynemouth, Canterbury. At Canterbury we may also observe the remarkable contraction of the central alley towards the east, contributing to improve the perspective and give the appearance of greater length, although designed to avoid the older side towers of the choir, and adapt the new structure to the width of the more ancient chapel beyond.

The Anchorage.—A recluse lived in the aisle of Westminster, at Leicester (Leland's Collect., iii. 337), and another near the Lady Chapel of Peterborough. At Durham, the cell was approached by a staircase from the north choir aisle. At Norwich, a gallery, still existing in the north choir aisle, communicated with the sanctuary men's chamber, which, before the fifteenth century, was the relic chapel of St. Osyth, and occupied by a recluse.*

* Crux [Gervase] duo brachia (MS. Harl. 3763, fo. 170).

THE STRUCTURAL VALUE OF WROUGHT IRON.

IT is now nearly sixty years ago that the scientific acumen of Dr. Thomas Young pointed to the value of, and the part played by, resilience in construction. The teachings of this *savant universel*, as he is termed by Arago, were neglected for many years; and it is only in latter times that we are beginning to perceive that a knowledge of the mere breaking-weight of our materials is a rather delusive sort of knowledge. Hundreds of pounds have been spent on thousands of experiments, and in but a comparative minority of these experiments has the extension been taken into consideration in conjunction with the breaking-weight. Even now there are hundreds of people who estimate the value of a bar of iron merely by the amount of gradually applied weight that it will bear. But the ultimate strength of a balk of timber, or of a bar of iron, is only one of the qualities required by the exigencies of construction. It is not merely the magnitude, but also the nature of the forces to be undergone by any given arrangement that are to be considered. It is not merely the ultimate strength, therefore, of the material used, but its stiffness, or its resilience, or its ductility, that has to be adapted to a special case. As Young says, using literally household instances:—"For a ceiling, stiffness would be principally desirable, for a door, strength; for the floor of a ball-room, resilience; for a coach-spring, resilience and flexibility, that is, resilience without stiffness. An observatory should be as stiff as possible; a ship, as strong as possible; a cable, as resilient as possible. . . . . It is a common remark, that a floor which shakes is the strongest; and, improbable as it appears at first sight, it may perhaps be founded on truth; for if the absolute strength of a stiff and a shaking floor were equal, the shaking floor would bear the effects of motion with the least injury. It is possible that a stiff floor, which would support a numerous assembly, might give way at a ball, while a more resilient one, which would be suited for dancing, might be destroyed by a crowded concert."

At the time Dr. Young wrote, the modern engineer may scarcely be said to have had an existence. Unprovided with the present immense stores of iron, and more especially of wrought iron, there was no other material of a sufficiently tough character, with sufficient latent molecular power for diverting the energy or impetus of a body in motion, that would render possible structures such as our railway bridges—structures that have to absorb the otherwise destructive effects of a moving load. But these results cannot be attained by the use of a material which merely has a high ultimate cohesive power. An eminent French engineer has pointed to a useful measure of the working properties of iron, and we will now hear him in his own words. The power of clear, and of simple, yet *gründliche*, scientific description, indeed appears

* To be continued.

at present almost like a lost art in England. We have, on the one hand, a set of manuals bristling with integrals, which have about the same effect on the majority of readers as the signs of the Cabala; or, on the other, the most flimsy and superficial accounts of matters that can never be really acquired by any amount of flimsy and superficial reading. The French appear to excel both ourselves and the Germans in the exquisite clearness and elegant precision of their scientific works. One of their most distinguished writers on engineering questions is the well-known General Morin, who is probably the ablest experimenter of the day, and whose results form the stock-in-trade of the innumerable ill-considered "engineers' pocket-books" that are perennially launched forth on the public of this country. Perhaps the most useful and complete work on the subject are his two volumes *sur la résistance des matériaux.**

Much of the course of reading required by any engineer or builder who wishes to know what he is doing is laid down in the simplest and clearest manner by the aid of easy formulæ known to every tyro in algebra, and sometimes by simple, and yet remarkably ingenious geometrical expositions. Every one knows, or ought to know, French now-a-days; and the slight impediment, at first sight, to some, in the metrical weights and measures, ought to be rather considered as an advantage at this time,—at any rate, if it be not expected that Mr. Ewart's Measures and Weights Bill will remain a dead letter. To a reader who does not know thoroughly French, we cannot imagine a better way of acquiring the language than by means of such works, as the figures and formulæ form a universal language, and one that gives a running translation of the text. It is in this way that General Morin develops Poncelet's co-efficients, to the use of which so much attention has been lately given by engineers; but we need not say that his sentences are not improved in their English dress.

"As bodies elongate under the action of forces exerted in the direction of their length, their resistance develops, for each increment of the total extension, an amount of work measured by the product of the effort exerted into the elongation.

If a curve be now constructed, the ordinates of which represent the successive efforts exerted, and the abscissæ of which represent the elongations, or the distances passed in the direction of these efforts, then the quadrature of a curve of this kind will give the value of the work done in producing any given elongation.

This quadrature, carried out from the commencement of the elongations up to the extension corresponding to the limit of elasticity, gives the work done by the resistance of the given body during this given interval. M. Poncelet has termed this work done, *the living resistance of elasticity*, and he designates it by the sign T_e. If the quadrature be carried as far as the effort which takes place at the time of rupture, the total work necessary to rupture the body will then be obtained. This work done is termed by the same author *the living resistance of rupture*, and he represents it by the letters T_r, for each metre of length, and for a given unity of cross sectional area.

It will be at once seen that the work T_e, or the living resistance of elasticity, is given by the area of a triangle, the base of which is the elongation per metre corresponding to the elastic limit, multiplied by the length L of the body, and the height of which triangle is the effort corresponding to this limit." It may perhaps be as well to here remind ourselves of the sufficiently obvious fact that the amount of elongation, or the amount of the compression, of a body under a given stress, is proportionate to its length—that, for instance, a bar (say) 10 feet long will elongate under a given stress ten times more than a bar 1 foot long. This relation of the extension of a bar to its length is therefore evidently a constant quantity, which we may term i, and which in our case represents the elongation per current metre. Within certain limits, varying for different materials, the amount of elongation increases in the relation of the force exerted to the cross sectional area of the bar. That is to say, the bar does not take a permanent set by a strain the amount of which does not exceed the elastic limit. The experiments of Mr. Hodgkinson would appear to show that, for instance, a wrought-iron bar takes a permanent set with a very slight load, with a load much within the amount generally assumed as the elastic limit by engineers,—a limit upon which all the most successful constructions and adaptations of iron have been based. But, in the first place, the amounts noticed were microscopically small; and, in the second, the extensions only began to rapidly and irregularly increase *beyond* the limit generally received as true by engineers and builders. This co-efficient of elasticity may be called E; and supposing, therefore, that the load P is per square millimetre of cross section A, and that i is the elongation per metre corresponding to the limit of elasticity, the general relation $P = A\,E\,i$ becomes $P = E\,i$.

The area, therefore, of M. Poncelet's triangle representing the work done per each square millimetre in stretching the body, is $\frac{1}{2}\,P\,i\,L$; and, as we have seen that $P = E\,i$, then, substituting $E\,i$ for P, $\frac{1}{2}\,P\,i\,L = \frac{1}{2}\,E\,L\,i^2$. If the cross section A be expressed in square metres, then $T_e = \frac{1}{2}\,E\,A\,L\,i^2$. It will be seen that this product will increase the more the body has the power of keeping its elasticity under the action of forces tending to lengthen it. A glance at two or three curves constructed in this way will show that hard kinds of iron give a considerably higher living resistance of elasticity than the soft or ductile qualities.

If the quadrature be extended to the total surface of the curves, which surface is of course cut short at the ordinate corresponding to rupture, it will be seen that the area,—which represents the total work developed in producing this rupture,—is much greater for soft iron than for hard iron. This shows the advantage of, and the security given by, soft kinds of iron in all cases where the parts are subjected to shocks or to accidental efforts." General Morin gives the following practical examples:—"A bar is found to gradually lengthen up to a load of 16 kilogrammes per millimetre cross section; its elongation per current metre being $i = 0{\cdot}00086$m.; the work done, or the living resistance of elasticity, or T_e, is per square millimetre of section:—$T_e = \frac{1}{2}\,P\,i = \frac{1}{2} \times 16$ kil. $\times\ 0{\cdot}0086$ m. $= 0{\cdot}00688$ kilogrammetres.

Another bar of round iron, 6 metres long and 0·030 in diameter, or with 707 square millimetres cross section, will give a living resistance of elasticity of $T_e\,A\,L = 0{\cdot}00688$ km. $\times\ 6 \times 707 = 29{\cdot}18496$ km. If, for instance, a body of the weight Q, falling from a height H, had to be arrested in its fall by this bar, then the work developed in this body by gravity, or the half of its *vis viva*, $\frac{1}{2}\,\frac{Q}{g}\,V^2 = Q\,H$, would have to be absorbed by this bar. In order that the elasticity of the bar should not be destroyed, the product $Q\,H$ must not exceed 29·18 kilogrammetres. Thus, a weight of 1,000 kilogr. falling from a height of 0·02918 m. would develop a certain amount of work, which, if exceeded, would affect the elasticity of the bar.

The quadrature of the total surface of the curve, or the living resistance of rupture, would give $T_r = 4{\cdot}467$ km. per metre of length and per square millimetre of section. . . . . The application to the bar 6 metres long by 0·030 m. in diameter, would give, for the living resistance of rupture, the value $T_r\,A\,L = 4{\cdot}797$ km. $\times\ 707 \times 6$ mil. $= 19076{\cdot}27$ km., from which it results that a weight of 1,000 kilog. ought to fall from a height of 19·076 m. in order to break the bar. It will be seen by this example that soft iron is only broken when it has absorbed a *vis viva*, or after having developed a living resistance, very much superior to that sufficient to alter its elasticity."

The first man of science in England who appreciated the great practical value of Poncelet's co-efficients was Mr. R. Mallet. In a work of the highest importance on the "Physical Conditions involved in the Construction of Artillery," published in 1856, these co-efficients of elasticity and rupture were applied to an investigation as to the best material and structure for artillery; and, in 1859, to an important paper read on the 1st of March, before the Institution of Civil Engineers, on "The Co-Efficients T_e and T_r of Elasticity, and Rupture, in Wrought Iron, in relation to the Volume of the Metallic Mass, its Metallurgic Treatment, and the Axial Direction of its Constituent Crystals." Mr. Mallet has adapted M. Poncelet's co-efficients to the English mechanical standard of work,—foot-pounds; and the units of force and range thus adopted at once show the work done in producing the change of form. The co-efficients T_e and T_r thus translated into English, mean the work done by tension in elongating a bar of iron of the English unit of length 1 foot, and the unit of section 1 square inch, at the point of elastic limit T_e, and at that of rupture or of cohesive limit, T_r. In the same way the co-efficients T_e' and T_r' show the work done in compressing a bar of 1 foot in length and 1 inch cross section at the points of elastic limit or of permanent distortion T_e' and of cohesive limit by crushing T_r'. The force being variable between zero and i, as was graphically expressed in the triangle used by Morin, they are similarly obtained by multiplying the actual force applied, at the point either of the elastic limit or of rupture, into one-half the range of extension or of compression. Thus, the original faggot-bars for the Mersey Company's gun were found to take a permanent set with a load of 12·031 tons per square inch. The total extension of a bar 1 foot long, under this load, was 0·0292 of an inch. The tons being expressed in pounds, and the decimals of the inch in terms of a foot, one-half the product of the two amounts is $T_e = 32{\cdot}789$ foot-pounds. The tension at rupture of this bar was 21·875 tons; the total extension was 0·6600 of an inch; and expressing as before the weight in pounds and the decimals of the inch in terms of the foot by dividing them by 12, the product of the two numbers, divided by 2 is $T_r = 1347$ foot-pounds. The total compression per unit of length at the elastic limit was 0·36 of an inch; this was effected by the pressure of 21·42 tons; the final value of T_e' was therefore 360·0 foot-pounds. The pressure at complete distortion was 27·68 tons; the total compression was 0·64 inches; the value of T_r' due to complete distortion was therefore 821·0 foot-pounds.

The only objection we have seen made against the use of these expressions is that of Mr. Bramwell, who said that "if, for example, a cylinder, composed of hardened cast steel, containing an elastic body, as compressed air, which exerted a pressure of 1,000 lb. per square inch, was incapable of extension without fracture, and of fracture without a pressure of 1,001 lb. to the inch; then it would never give way under a steady strain of 1,000 lb. to the inch, and therefore would be fit to sustain that pressure. If, on the other hand, the material was only capable of supporting a strain of 999 lb. to the inch, but had a power of stretching an inch before fracture, then it was equally certain that with 1,000 lb. to the inch the cylinder would give way, and therefore would be fit to sustain the pressure; although the work done would be represented by 999 lb. moved through the capability of extension, viz., 1 inch; whereas the cast-steel cylinder would break with 1,001 lb., without appreciable extension, and the work done in so breaking it would be 1,001 lb., through an infinitely small space, and would, therefore, practically be nothing. This illustration showed that the value of a metal to withstand a quiescent load, did not depend entirely upon the work to be done in order to break it. If the impact from a non-elastic body had to be resisted, then this theory might be true; but he apprehended it would not be found to be so, when materials had to withstand pressure from elastic fluids. For hydraulic presses, boilers, air-vessels, &c., where there was an elastic load within the cylinder, this principle was not capable of application."

Now, without examining the conditions affecting the pressures of elastic fluids, and those of practically non-elastic liquids, it would appear that the condition supposed could not very easily exist, as the hardest steel must have some extension, and is never without some elasticity. But Mr. Mallet carefully guards these co-efficients from the assumption that structural value depends upon them alone. "It is upon the just balance of rigidity and extensibility, or ductility with cohesive power, that the true value of iron, in whatever state, depends as a material for construction."

Of course it is clear enough that T_r may be the same for a bar which has a high ultimate breaking strength, and a very slight extension, and another bar which has a low breaking strength, but a high amount of elongation. In choosing a certain material for a given purpose, both the factors should be taken into consideration. And, as was pointed out by Mr. Mallet, these expressions have another manifest advantage over others of the kind, that they admit of direct comparison with other correlated physical forces; for example, with the heat evolved by compression or extension, as measured into mechanical effort.

* Résistance des Matériaux. Par Arthur Morin, Général de Division d'Artillerie, Membre de l'Institut, etc. etc. etc. Troisième édition. Hachette & Co., Paris and London. 1863.

THE BUILDING AND IRON TRADES.

THE Birmingham architects have been endeavouring to bring the masters and workmen to a good understanding, so as to obviate the threatened strike. They called a meeting of both parties on the eve of the expiry of the time allowed to precede the strike, for the purpose of discussing the questions of difference.

Mr. J. T. Bunce, an honorary member of the architects' society, and a gentleman disinterested as regards both parties, was called upon to take the chair, and he presided over a very large and, on the whole, good-tempered meeting. There were, in all probability, about 800 members of the different trades present. The following architects were also present:—Messrs. Holmes, Chamberlain, T. Plevins, Bateman, Phipson, J. G. Bland, Cranston, W. Harris, Payne, Perry, Empson, Thomason, Chatwin, Jewell, Jenkins, Norton, Mansell, Fiddian, Orford, F. D. Johnson, and Hawkes. Amongst builders were Messrs. Hardwick, Briggs & Son, W. & R. Smith, J. Barnsley & Sons, W. & J. Welch, Wilson, Jeffry & Pritchard, Mathews, Heywood, Cresswell, Pashby, Bennett, Grove, Jones, and Godfrey.

Various delegates from the workmen were also present, and spoke moderately as to their respective grievances. Mr. J. H. Chamberlain moved the following resolution:—

"That, in the opinion of this meeting, it is desirable that the question in dispute between the master builders and the workmen should be settled in a friendly manner, either by arbitration or by a conference." The architects, he said, did not presume to dictate as to which of the two courses should be adopted, for they felt that either in arbitration or in a conference lay the only hope of bringing this dispute to an amicable termination. He believed that the dispute had arisen out of the very nature of things—out of the growing prosperity of the country, and out of that growing prosperity of the working classes which they were all delighted to witness; and when a crisis of this kind came, it was impossible to avoid it. The parties took different views—perhaps extreme views—and the plan to remedy it was to call in the aid of some third person, who was not personally interested with the trade, to settle between them. He hoped some means would be taken to prevent the possibility of a strike, which, besides the pecuniary loss which it inflicted upon all persons concerned, laid the foundation of feelings of animosity which years could not wipe out. He asked all present to vote in favour of the resolution before the meeting, and at their own meeting to give the matter such mature deliberation as should secure its speedy and friendly settlement.

Mr. Plevins seconded the resolution; and, in doing so, said that the architects would in a body be glad, after hearing both sides of the case and weighing the evidence, to advise as to the course which should be adopted at this juncture.

Mr. Wilson (master builder), disclaimed on the part of the class to which he belonged any hostile feeling towards the men, whose interests were identical with those of their employers, and thanked the architects for having called the meeting, and thus thrown "oil upon the troubled waters." The reason why the masters did not then say anything, was that they were pre-engaged to meet the delegates from the various branches, with a view, if possible, to an amicable arrangement of the dispute. He thought that discussion on the part of the masters would come much better at that meeting.

The resolution was then put and carried, three only dissenting.

Mr. Bateman moved an adjournment of the meeting until after the discussion between the masters and men. This also was agreed to, as also that a deputation of architects should attend the trades' meeting, Mr. Chamberlain, Mr. Harris, Mr. Plevins, and Mr. Holmes being nominated to form the deputation.

The adjourned meeting was held on Saturday: Mr. Bunce, as before, presided. The delegates stated that they had not yet had time to consult the trade societies, but they promised to do so in the course of Saturday evening, and return a final answer on Monday morning. They were, generally speaking, favourably disposed towards the proposed mode of settlement, but they expressed a determination not to return to work again until the matter is arranged. The masters, on hearing this, decided that they must reconsider their previous decision as to a conference. The strike commenced on Monday. The proposal to refer the matter in dispute to arbitration, as suggested by the architects, was assented to by the masters and by the masons and carpenters, but declined by the bricklayers, plasterers, and labourers. The masters were to hold another meeting, and their *ultimatum* was to be made known probably to-day (Thursday).

At Hull, the whole of the bricklayers connected with the Society have struck for an advance of 6d. per day. Circulars were sent to the various builders demanding an advance, and also threatening that the men would not work unless the demand were acceded to. In one or two instances the advance was paid. Several hundreds of bricklayers are now out. Their wages were 4s. 6d. per day. The bricklayers' labourers, who had 18s. per week, have also struck for 21s.; and they, where work is pressing, have got the advance demanded.

The threatened strike of painters in Carlisle for an advance of two shillings per week has been averted by an arrangement with the masters, favourable to the men, but not to the full extent of their demand. The majority of the masters in the town signed the agreement.

At Malvern, the bricklayers and plasterers in the employment of Messrs. G. M'Cann & Everal, builders, refused to go to work until the masters agreed to let them leave in the evenings at 5·30 instead of 6 o'clock, and to have an hour at meals in winter, instead of half an hour as at present. The workmen in the employment of Mr. Perkins, builder, also refused to work under similar circumstances. An arrangement has since been effected between the masters and the men.

In consequence of strikes at one or two establishments for an advance of wages, the master builders of Plymouth, Devonport, and Stonehouse have decided upon a general lock-out. At a numerous meeting of carpenters and masons since held, a resolution was passed to the effect that the course adopted by the masters was unjustifiable, and merited their censure; but they trusted that the misunderstanding would soon be brought to a satisfactory settlement.

In the Leeds district seven large ironworks have been closed, in consequence of the men (both trade unionists and otherwise) refusing to accept an agreement proposed by the employers which would bind them not to associate or organize for the purpose of resisting any of the employers' arrangements in the labour department. The works so closed are the Monk Bridge, Perseverance, Clarence, Pottery Field (all in Leeds), Bowling and Low Moor (both near Bradford). In consequence of this disagreement five or six thousand puddlers, rollers, ball-furnacemen, &c., are thrown out of employment; though we understand that already strong symptoms appear of an amicable settlement being speedily arrived at. One of the leaders of the workmen, a Mr. Kane, charges another,—Mr. Marshall, the secretary for the Leeds district,—with having brought about the present dispute by peremptorily insisting upon the discharge of a non-union man from Messrs. Witham's, the Perseverance Mills, whereas the executive held it to be impolitic for their members to treat as obnoxious those who did not happen to belong to the same association. This assertion by an individual so high in authority among the men has produced a good deal of sensation, as clearly tending to pacification and conciliation.

At Liverpool a number of puddlers, employed at the Mersey Steel and Iron Works, have struck work, not for any increase of wages, but to compel their employers to ventilate the places where they work. That there was reason in the men's refusal to work appears from the confession of one of the firm, that he had thought of opening additional apertures in the walls, and that *now* they were in fact being opened; but why should the men have been forced to strike from want of these apertures? It would have been for the interest of the masters in more ways than one; for not only would the men have been better able to do justice to their arduous labours, but the metal, which is puddled for the very purpose of exposing it to the oxygen of the air, would have been better, and more quickly, and hence more cheaply, prepared.

At a meeting of the iron trade of the United Kingdom, held in London on the 28th ultimo, attended by its most influential members, resolutions to the following effect were unanimously adopted:—"That this meeting, without any desire to interfere with the right of the workmen to combine for any fair and legitimate object, is resolved to resist, by every means in its power, all attempts on the part of any combination of workmen to dictate to their employers the mode in which their work shall be conducted, and what workmen they shall employ; and, with a view to maintain this principle, a committee be formed, representing every iron-making district." These resolutions seem to refer to the Leeds lock-out.

PROPOSED GALLERIES AT SOUTH KENSINGTON.

THE Commissioners appointed to award the premiums for the designs submitted in competition for the galleries, met on the 29th ult. for the final decision. There were present:—Lord Elcho, in the chair, and the other commissioners, Mr. Tite, Mr. David Roberts, Mr. Fergusson, and Mr. Pennethorne. After final examination and discussion, they reported, on the 2nd instant, that they unanimously awarded the first premium to the design distinguished by the motto, "Ad ogni uccello," &c.; the second to that marked "Well to build," &c.; and the third to that inscribed "Pro Rege et Lege."

The report having been forwarded to the Chief Commissioner of Works, the Right Hon. W. Cowper, M.P., and the letters opened, it was ascertained that the first premium of 400*l.* had been awarded to Captain Fowke; the second, of 250*l.*, to Professor Kerr; and the third, 100*l.*, to Mr. C. Brodrick.

We understand that Professor Kerr, on behalf of the unsuccessful competitors, has protested against the decision, and appealed to the Institute of British Architects. His grounds are that the instructions had been exceeded by the author of the design "Ad ogni," &c.

We shall conclude review of the designs in our next. A full description of the first and second selected designs will be found in a previous number.

We are asked to mention that the drawings to which the first premium was awarded were coloured by Mr. Burbidge.

COMPETITIONS.

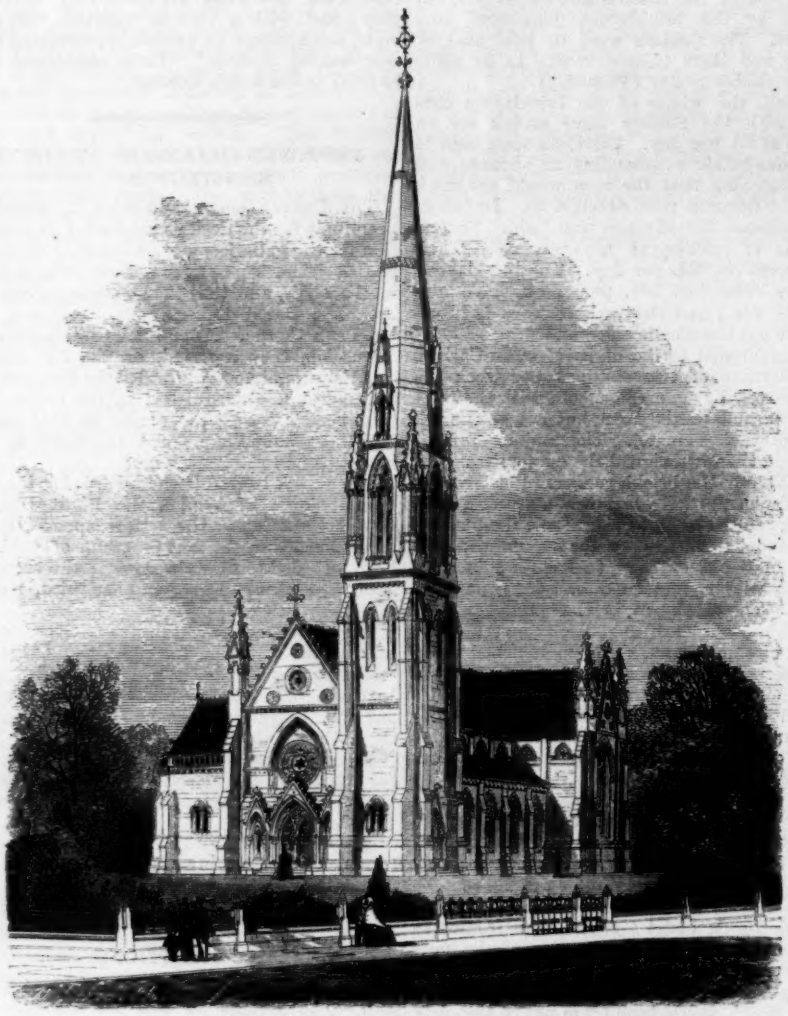
The new Literary Institute Building at Willenhall.—The designs for this new institute have been sent in, and the one by Mr. Veall, architect, Wolverhampton, has been accepted. The institute is to be erected on a site in Lichfield-street, Mr. R. D. Gough consenting to sell the ground for that purpose at 6d. per yard. The estimated cost of the building is 1,100*l.*, there still remaining 600*l.* to be subscribed to finish the undertaking.

CIVIL ENGINEERS IN INDIA.

APROPOS of this question, we have received a letter by the last Bombay mail, *viâ* Marseilles. Our correspondent, to whom we were indebted some time ago for some notes on the Bombay artisans, is engaged in making roads and building bridges (some of these are of enormous dimensions) in the districts of Aurungabad and Berar, and dates at present from the "Goar River Bridge, Seroor." After stating a number of facts respecting the administration of public works in India, and the character of the work turned out by the military engineers, he proceeds to touch on rather a vital part of the question: "Berar is the great cotton district of India; and the Manchester people, or rather the manufacturing interests of England, are deeply concerned in what are now called here "cotton roads" and "railway feeders;" but if you only knew the kind of assistance they get from the Government,—if you could show how the money is misspent and squandered by those who direct,—I am confident, if there were no other remedy, that the Manchester Cotton Association would make a nice "Government grievance" out of it. The Aurungabad roads, he says, are all at a stop, owing to a dispute about the levels and the measurements; and the whole difficulty arises from the want of proper direction.

THE HOTEL MOVEMENT.

THERE seems to be no slackening in this movement, which extends to all parts of the country. What can have caused it, it is hard to say: doubtless some published statements as to the large profits of two or three metropolitan hotels have had something to do with it; but it is very questionable whether large profits are the rule and not the mere ex-



NEW CONGREGATIONAL CHURCH, SCARBOROUGH.

MESSRS. LOCKWOOD & MAWSON, ARCHITECTS.

ception. That the reiterated complaints in the newspapers of the extortionate and preposterous conduct of hotel-keepers in this country have not led to it seems evident, else we should have had plentiful promises of amendment in this respect. As indicating the very questionable sequence of large returns from such charges, however, even these complaints may have helped the movement; in which case the public had better look out, for their pockets are in more peril than ever. The only exception we recollect of is that of the Newmarket Hotels Company, in whose advertisement repeated allusion is made to a reform in the tariffs of extortionate charges. This new scheme is introduced under the auspices of a long list of lords and earls, headed by a duke and a marquis. The Palace and Burlington Hotels, in London, are about to be handed over, like so many others, to a new company, who are to have the benefit of the services of the present proprietor of both. Other schemes are the Bell Hotel Company, of Gloucester; and an Abingdon Hotel Company, with a new hotel on the site of the old Queen's Arms. The foundation-stone of the new Pier Hotel at Southsea has been laid.

THE ROOF OF THE GUILDHALL, LONDON.

At the last meeting of the Common Council, Mr. Kelday, the chairman of the Guildhall Improvement Committee, brought forward a motion for which the court was specially convened—namely, on the reference relative to the roof of the Guildhall, and recommending that the design of the proposed roof should be modified so as to make it in accordance with the intentions of the court and the period of the architecture of the hall, that the roof should be constructed of oak; also that the ancient windows, now blocked up, be opened, and that the four turrets be pulled down to the level of the wall; the whole to be carried out at an additional expense not exceeding 5,900*l*. Having briefly moved the adoption of the report, he said, that after consulting the City architect, Mr. D. Wyatt, and Mr. Roberts, they had come to the unanimous opinion that it was not advisable to carry out the original contract; as, if they did so, the new roof would not only not be erected in accordance with the intention of the court, but would be at variance with the ancient architecture of the building, and would very possibly subject the corporation to a great deal of comment on the part of those versed in such matters. After a few words from Mr. Rowe, to the effect that it would be better, in his opinion, to pull down the present building and erect a new one upon its site, and a suggestion by Mr. R. N. Phillips that the alterations should be made by tenders to be obtained by advertisement, the report of the committee was unanimously agreed to. The total cost will be about 23,000*l*.

BRICK FIRE-PROOF CONSTRUCTION.

In our volume for 1861 we described some brick arches under and over stables, erected for Mr. Smith, of the Strand, under the direction of Mr. F. H. Groves. The same architect, considering that it was practicable to erect a building wholly in brickwork, including the floors and roof, without the use of iron or wood, has since set up a brick model, so to speak, 20 feet long, 11 feet wide, and above 10 feet high, in two compartments, one illustrating a floor and close roof, the other an open-panelled roof for light, and adapted to any extent of embellishment. The floor in the first compartment is represented by an arch, taking on an average little more space than would be required for a wood floor with girders and ceiling joists. Above the floor is the close roof, also taking no more space than would be required for an ordinary roof, from the uppermost ceiling of square rooms to the ridge.

One object sought in the construction was to obviate the risk of thrust upon the outer walls, without any great extra thickness of walls, buttresses, or superincumbent weight beyond the ordinary height of a parapet, excepting at the extreme angles of the building, and something subordinate over the piers between, which would be of a decorative character, such as pavilions, pedestals, terminals, &c.: at the same time provision has been made for fireplaces, flues, and windows, by which, it is urged, it might be made applicable to churches.

In the model, the angle piers are two and a half bricks square, to admit of flues in them. The intermediate piers are two bricks square, for the same reason.

In the compartment where the roof only is shown, the space is covered by an open-panelled revolving arch; the main ribs are 9 inches deep. There is but little parapet; but the angle piers and intervening ones are carried higher, for the twofold purpose of weight and decoration, as before intimated.

In conclusion, it may not be misplaced to venture an opinion as to areas that may be covered by arches on this principle, of different thicknesses: Mr. Groves thinks a half-brick arch will suffice for a square, to a square and a half, or about 150 superficial feet; one brick about four squares; two bricks about sixteen squares, showing its applicability to buildings of various sizes. Touching the cost, he says that, in taking out the quantities in one bay of St. Katherine's Dock warehouses, and a bay of a warehouse constructed on this principle, the result showed the latter to be somewhat the cheaper of the two.

In carrying out construction on the principle here indicated, careful calculations and good workmanship would be necessary.

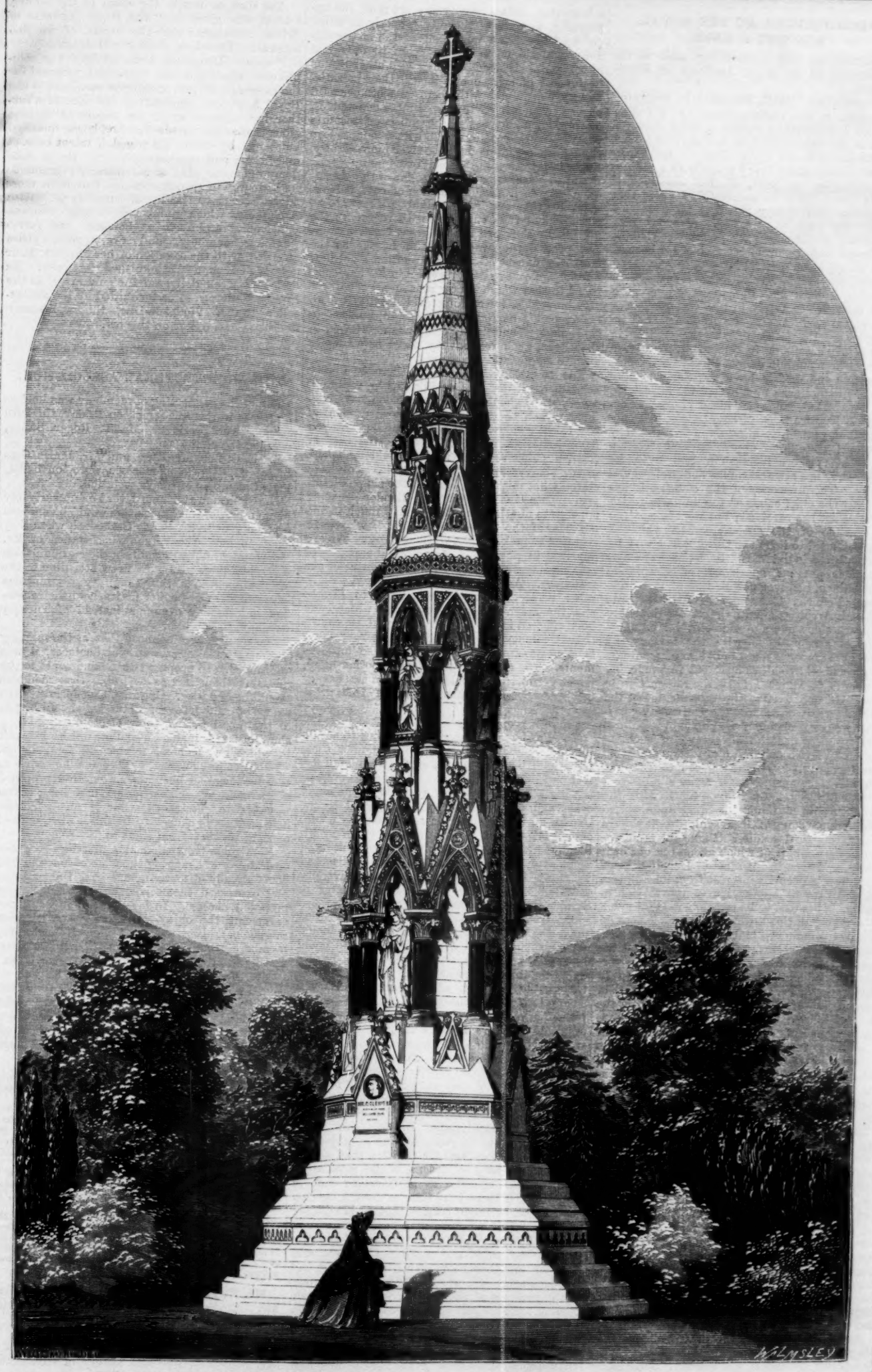
NEW CONGREGATIONAL CHURCH AT SCARBOROUGH.

This building is about to be erected on the South Cliff at Scarborough, at a cost of 8,000*l*., from the designs of Messrs. Lockwood & Mawson, architects, and on a site presented to the Committee by Mr. Titus Salt. Externally, the structure will be faced with Whitby wallstones and ashlar dressings; and internally the nave, transept, and organ chapel, piers, and arches, the door jambs, and the roof corbels, shafts, and capitals, will be of the same stone. The spire rises to a height of 160 feet, and accommodation is provided for 1,000 worshippers. Commodious class-rooms, committee-room, vestries, &c., are planned in the rear; and it is intended that the building is to be completed by July, 1865.

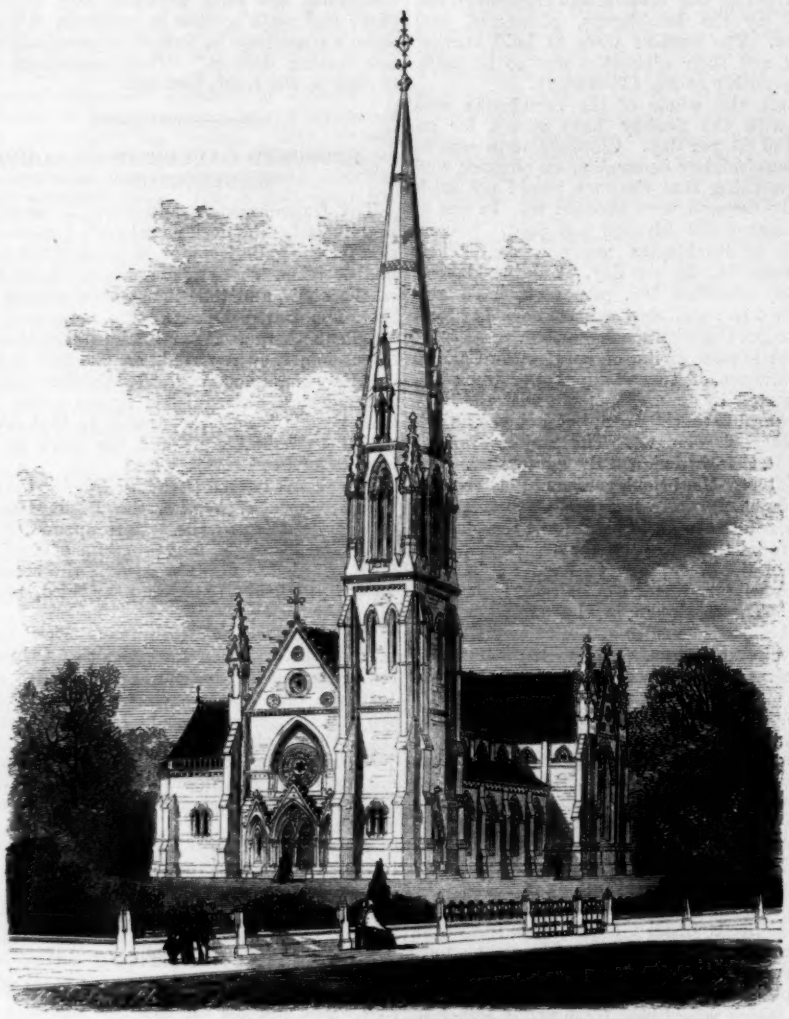
THE MEMORIAL TO THE LATE SIR G. C. LEWIS, BART., FOR NEW RADNOR.

This memorial is in due course of erection, and the committee fully anticipate having it completed and inaugurated during the month of October next. The accompanying engraving represents the design, which was selected from fifty-nine other competitive drawings sent in. The cost of the structure is estimated and contracted for at 1,000*l*. The total height will not be less than 77 feet, and the greatest width at the steps 25 feet. The material is Box ground stone, with red Mansfield stone columns. There will be four Caen stone figures in the first stage, and four in the second, all allegorical. A large medallion presenting a profile portrait of the late baronet, in marble, will occupy one of the lower gables of the base: coats of arms will appear in the three other gables. The plan throughout is octagonal.

The site first chosen was the Castle-hill; but after the workmen had tried the ground here and there at various depths, they unexpectedly came upon the foundations of the ancient Castle of Radnor, the character and condition of which are interesting and good. Consequently, the committee very wisely determined upon selecting a new site, which is between Radnor and the residence of the late baronet, and better adapted for the memorial, which is after the Eleanor Cross style, than a mound 100 feet high. Besides the family arms, &c., there will be many coats of arms of an historical character, with much elaborate carving. The architect of the memorial is Mr. John Gibbs, of Oxford; the contractor, Mr. W. Mansfield, of Kington, Herefordshire; and the carver, Mr. W. Stevens, of Barnwell.



THE CORNEWALL LEWIS MEMORIAL, NEW RADNOR.—MR. JOHN GIBBS, ARCHITECT.



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In the model, the angle piers are two and a half bricks square, to admit of flues in them. The intermediate piers are two bricks square, for the same reason.

In the compartment where the roof only is shown, the space is covered by an open-panelled revolving arch; the main ribs are 9 inches deep. There is but little parapet; but the angle piers and intervening ones are carried higher, for the twofold purpose of weight and decoration, as before intimated.

In conclusion, it may not be misplaced to venture an opinion as to areas that may be covered by arches on this principle, of different thicknesses: Mr. Groves thinks a half-brick arch will suffice for a square, to a square and a half, or about 150 superficial feet; one brick about four squares; two bricks about sixteen squares, showing its applicability to buildings of various sizes. Touching the cost, he says that, in taking out the quantities in one bay of St. Katherine's Dock warehouses, and a bay of a warehouse constructed on this principle, the result showed the latter to be somewhat the cheaper of the two.

In carrying out construction on the principle here indicated, careful calculations and good workmanship would be necessary.

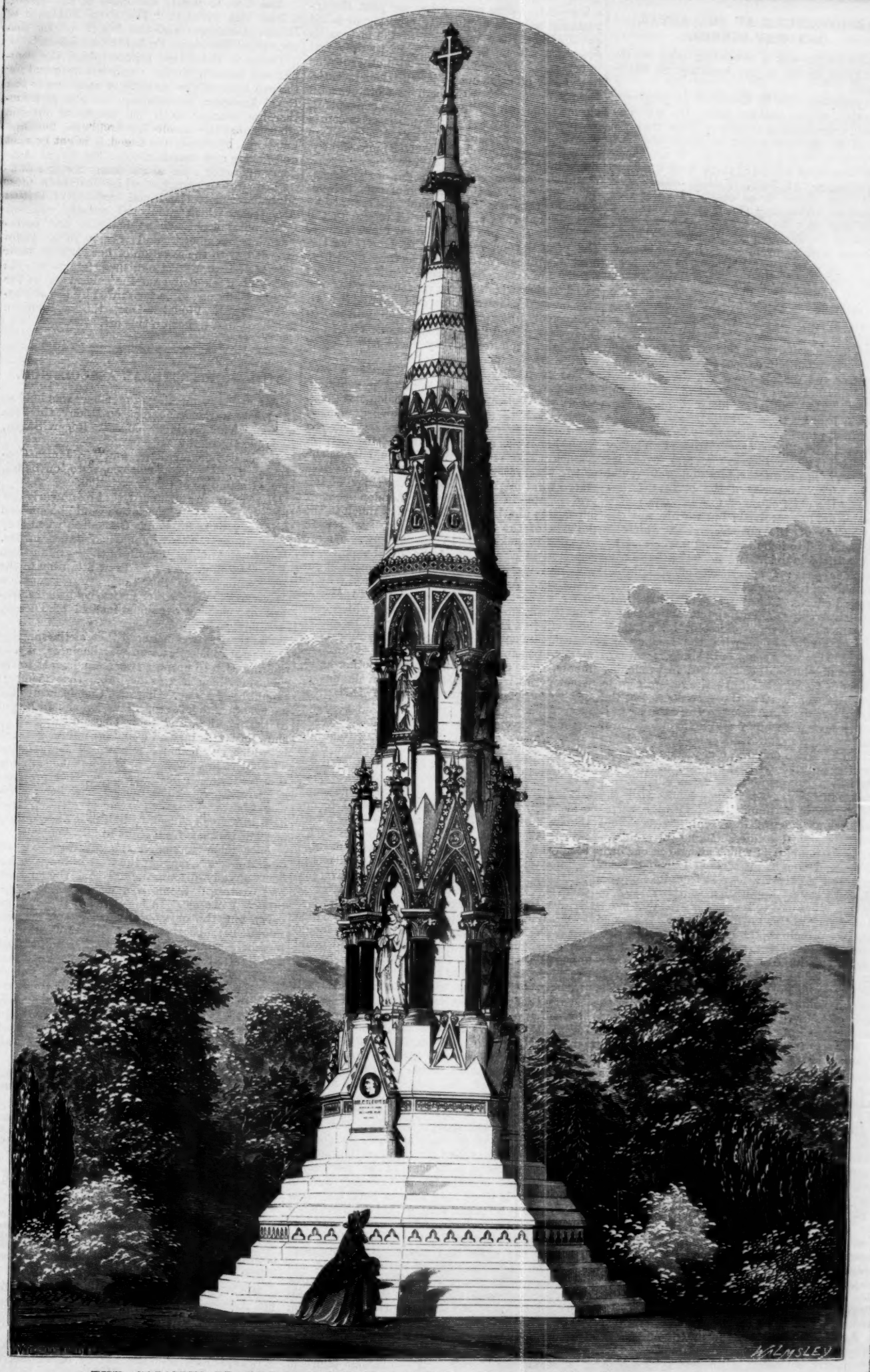
NEW CONGREGATIONAL CHURCH AT SCARBOROUGH.

THIS building is about to be erected on the South Cliff at Scarborough, at a cost of 8,000*l*., from the designs of Messrs. Lockwood & Mawson, architects, and on a site presented to the Committee by Mr. Titus Salt. Externally, the structure will be faced with Whitby wallstones and ashlar dressings; and internally the nave, transept, and organ chapel, piers, and arches, the door jambs, and the roof corbels, shafts, and capitals, will be of the same stone. The spire rises to a height of 160 feet, and accommodation is provided for 1,000 worshippers. Commodious class-rooms, committee-room, vestries, &c., are planned in the rear; and it is intended that the building is to be completed by July, 1865.

THE MEMORIAL TO THE LATE SIR G. C. LEWIS, BART., FOR NEW RADNOR.

THIS memorial is in due course of erection, and the committee fully anticipate having it completed and inaugurated during the month of October next. The accompanying engraving represents the design, which was selected from fifty-nine other competitive drawings sent in. The cost of the structure is estimated and contracted for at 1,000*l*. The total height will not be less than 77 feet, and the greatest width at the steps 25 feet. The material is Box ground stone, with red Mansfield stone columns. There will be four Caen stone figures in the first stage, and four in the second, all allegorical. A large medallion presenting a profile portrait of the late baronet, in marble, will occupy one of the lower gables of the base: coats of arms will appear in the three other gables. The plan throughout is octagonal.

The site first chosen was the Castle-hill; but after the workmen had tried the ground here and there at various depths, they unexpectedly came upon the foundations of the ancient Castle of Radnor, the character and condition of which are interesting and good. Consequently, the committee very wisely determined upon selecting a new site, which is between Radnor and the residence of the late baronet, and better adapted for the memorial, which is after the Eleanor Cross style, than a mound 100 feet high. Besides the family arms, &c., there will be many coats of arms of an historical character, with much elaborate carving. The architect of the memorial is Mr. John Gibbs, of Oxford; the contractor, Mr. W. Mansfield, of Kington, Herefordshire; and the carver, Mr. W. Stevens, of Barnwell.



THE CORNEWALL LEWIS MEMORIAL, NEW RADNOR.—MR. JOHN GIBBS, ARCHITECT.

ARCHITECTURE AT THE ROYAL ACADEMY DINNER.

ARCHITECTURE was a prevailing topic at the dinner given by the Royal Academy on Saturday last.

The president (Sir C. Eastlake) in proposing the health of the visitors, said,—On a former occasion I ventured to express a hope that the study of the fine arts might, to a certain extent, be introduced in our universities. I am happy to find that steps are being taken with a view to the promotion, at least, of that object; and should those efforts be successful, I trust that architecture will occupy the first place in any scheme that may be proposed. Although now extensively employed,—perhaps more so than at any former period,—architecture has not been so much an object of general interest as have been its more intelligible rivals. More creative than imitative, it does not, like them, admit of a direct reference to nature to test its excellences or shortcomings. Again, the greater part of its examples are only accessible to the student in fragmentary details or in comparatively minute copies. The mountain cannot come to Mahomet: transcripts and models have not the charm of original productions; and, except to professional eyes, convey but imperfect ideas of real structures. If I notice these circumstances, it is only to add that, notwithstanding the difficulties they suppose, the intelligent appreciation of architecture is everywhere increasing, and even its graver study has attractions for non-professional votaries. The prosperity of the country is undoubtedly the chief cause of the impulse which this noble art has received; but we are not the less sensible of the encouragement which is being extended to it by the Government and by public-spirited individuals. Societies have also done their part: I speak not of speculative undertakings, however useful, but of more disinterested efforts. The exertions of the Institute of British Architects, and the establishment a few years since of an Architectural Museum—an object accomplished with the zealous and liberal assistance of some enlightened amateurs now present—have all co-operated in producing the results to which I have the satisfaction to refer. At such a time the introduction of the study of architecture into the University curriculum would probably find public opinion prepared to recognise the advantage of such an addition. Viewed only as an academic study, no pursuit connected with the objects of taste can more fitly recommend itself as an adjunct to a liberal education. An acquaintance with the architecture of antiquity, leading to a corresponding knowledge of Greek sculpture, is closely allied to classical studies. Mediæval architecture, the examples of which abound in our own country, and even in the seats of learning themselves, has a peculiar interest from its frequent past and present application to the service of religion. It is also to be remembered that much of the theory of this art, depending as it does on scientific principles, is communicable by lectures and illustrations. With such aids and the study of existing edifices, the attainment of correct knowledge, the power of appreciating well-selected examples, and the gradual formation of a sound judgment, would be placed within the reach of many. I advert to this subject now, because some of those whom I have the honour to address may possibly have opportunities of assisting the efforts which are at present being made for promoting the study of the fine arts in the Universities. I have the honour to propose "The health of the distinguished guests who this day honour us with their presence."

The Archbishop of Canterbury, who replied, said in the course of his address,—As to the remarks you have made, Sir Charles, on the cultivation of the fine arts, and especially of architecture, in our public schools and Universities, I so far agree with you that I should be glad to see every branch of knowledge, and all the accomplishments which may combine to form the complete English gentleman, pursued therein, so far as is compatible with the maintenance in its real supremacy of the study of classical literature. That has hitherto been the staple of the education of the youth of England in our public schools and Universities, and will, I trust, continue to be so.

Again, in proposing the health of the Lord Mayor, the president got back to our art:—The prosperity of London, still marking its course by noble and patriotic results, begins to manifest itself also in an increased attention to external improvements. We may, consequently, indulge a hope that, before many years are past, the appearance not only of the city properly so called (which has led the way), but of the metropolis generally, will be more worthy of its universal importance. Instead of vieing with other States in the cost of armaments, it will then be satisfactory to contend with them in more peaceful objects; rendering our streets more convenient, our public buildings—whether museums or courts of law—more spacious and better adapted to their purposes, and our noble river more sightly. Such improvements, spread over many years, need not alarm even a Chancellor of the Exchequer. Apart from the question of cost, it is remarkable that our lively neighbours seem to be more patient than ourselves with regard to the necessarily slow progress of great undertakings. The poet Dryden regarded the Louvre as the most magnificent of earthly structures; yet how inferior must have been its effect in his day compared to that which it now presents. Whatever may be said of its architectural details, it is an instance of a comprehensive design, adhered to through ages, and finally completed. Viewed in that light, such works may serve as examples even to English perseverance.

The Lord Mayor, of whom there is a very good portrait in the exhibition, in replying, observed,—I should on this occasion have confined myself to the simple acknowledgment of the toast which has been proposed; but you have indicated a programme for the City of London which requires that I should make one or two observations in regard to it. You have stated what might be done in the shape of improvements in the City of London; but it appears to me that the City is very much in the position of the Israelites in Egypt, who were required to make bricks without straw. We are deprived in a great measure of the power of making improvements by the curtailment of our resources. And our power is interfered with in other respects. You have pointed to France and the magnificent improvements which have been effected in Paris; but it should be known that there they have something like 2,000,000*l.* sterling per annum to carry out these improvements. The city of London, on the other hand, is not permitted to hold the means she has, or use them for the improvements of this great metropolis.

Again it cropped up.

The President observed: Recurring to a subject on which I before ventured to offer some remarks—the introduction of the study of architecture in the universities—I now beg to propose the health of one who, in addition to his many other claims to our respect, is entitled to our thanks as having been himself formerly a successful labourer in the interesting field of architectural investigation; and who, having devoted much attention to the subject, may be disposed to think it not incompatible with university studies. I mean the distinguished master of Trinity College, Cambridge,—Dr. Whewell.

Dr. Whewell said that if he had been called upon as representing his University he could have responded with great pleasure, and could have said with great truth that that body was delighted to be remembered in any assembly of their countrymen in which men's minds were strung to elevated objects and pursuits—to the pleasures of intellect and imagination—to the admiration of art as well as of science. But that having been mentioned by the President with especial reference to his own concern with architecture, he could readily say that he looked upon the study of that subject as well fitted to enter into a course of intellectual training. Architecture had always seemed to him an especially intellectual study. He had first taken interest in it many years ago as a subject for theoretical history, and his views on that subject had been assented to by some of the most acute architectural speculators in Germany and in England. If there were time to dwell longer on the subject, he might remark that the prevalence of the intellectual element in architecture appeared at every period of the history of the subject, in the union and opposition, the contrast and the approximation, of the mechanical and the decorative structure. These two principles in the progress of the subject were perpetually coming together and then separating. To show how this had happened in Greek and Roman, Romanesque and Gothic architecture, would be too long a story; and he must conclude with thanking the President for the honour done him, and wishing success to the study of architecture, both in the world at large and in the Universities of this country.

And then, at nearly the close of the dinner, a toast was given to "The Royal Institute of British Architects and the health of its distinguished President, Professor Donaldson."

Professor Donaldson acknowledged the compliment, alluding to the rumoured proposal for the extension of the number of members of the Royal Academy, deprecating the idea of a further lay element until the suggested artistic education at the universities had better qualified amateurs to judge of the arts they were to direct and foster, and congratulating the Royal Academy upon the idea of admitting foreigners to its honours,—a principle which had been most advantageous to the Royal Institute of British Architects, which numbered seventy eminent Continental architects as honorary and corresponding members, and every three years awarded, with the sanction of her Majesty, their gold medal to a distinguished foreigner. He had that week delivered the gold medal at the French Embassy, to be forwarded by the ambassador to M. Viollet-le-Duc, the well-known architect, and writer on this art.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held at the House in Conduit-street, on Friday, the 29th ultimo. The president, Mr. T. Roger Smith, occupied the chair.

Mr. E. C. Lee, Mr. King, and Mr. James Cooper, of 61, Bartholomew-close, were, on ballot, elected members of the Association.

The Chairman announced, that on an early day the members of the Association would be enabled to pay a visit to St. Paul's Cathedral, when they hoped to have the valuable assistance of Mr. Penrose and of Mr. Blashill, in their examination of the building. He also drew attention to the circumstance that the voluntary examination class would, until further notice, hold their meetings on Monday evenings instead of Tuesday evenings, as heretofore.

The Chairman announced that, at the meeting on the 13th instant, for special business, it was the intention to propose two amendments to the rules, of which it was desirable that members should have notice. One was, that in future the names of candidates for admission should be put to the meeting, and their election carried by a show of hands instead of ballot, unless in cases in which any member might call for a ballot. The object in view was, to save as much time as possible for other business. The other proposed amendment of which notice had been given would be to change the time of meeting from half-past seven o'clock to half-past nine, instead of, as at present, from eight to ten o'clock.

A member reminded the meeting that the desirability of changing the time of meeting had been already discussed, and that the majority had expressed themselves unfavourable to the proposed change. In his opinion, it would not carry out the object in view (whatever that might be), because, as a general rule, the members would not come until eight o'clock, and in all probability would not leave until ten.

Mr. Mathews (Hon. Sec.) said he had received a letter from the Royal Institute of British Architects requesting that the following resolutions, agreed to at a meeting of the council of that body, held on Monday, the 18th April, might be brought under the notice of the Association:—

"That the subject of architectural education, as suggested by Mr. G. G. Scott, is well worthy of the attention of this Institute.

That the following societies be requested to depute certain of their members to form a committee, in conjunction with this Institute, for the consideration of the subject: Architectural Museum, four members; Architectural Association, four members; Architectural Exhibition, four members.

That the following members of the Royal Academy be requested to assist as members of the committee, viz.—Messrs. S. Smirke, P. Hardwick, E. M. Barry, E. W. Cooke, and R. Westmacott.

It was also resolved, that certain members of this Institute be appointed to represent it on the committee; and also resolved, that certain members of this Institute, having acted as examiners and moderators in the voluntary examination, be also appointed members of the committee."

Mr. W. Papworth then read a paper on English Architecture from the Accession of Henry VIII.

At the conclusion—

Mr. Blashill, in moving a vote of thanks to Mr. Papworth, said the history of architecture in England, since the Reformation had not been so much studied as it ought to have been. The art generally might not be of a high order,

but the architects worked under disadvantages such as we did not now experience, and probably succeeded in representing the general taste and feeling of the age in which they lived. In this view their works were entitled to respect, and ought not to be lightly destroyed. Many well-known examples were admirable in design and construction. Amongst others less generally admired and appreciated, he remembered hearing Mr. Petitt (himself an admirer of the Gothic school) give high praise to the arrangement of arched openings in St. Luke's Hospital, which praise was well deserved. The drawings exhibited that evening by Mr. Papworth were extremely interesting, and the Association was much indebted to him for having placed them at their disposal that evening.

The Chairman, previously to putting the vote of thanks, remarked upon the characteristic research which Mr. Papworth had brought to bear on a subject which was but inadequately represented in the literature of architecture. The paper which they had heard read was especially valuable to the student of architecture, and he hoped the Association would have an opportunity of studying it more at leisure.

The following gentlemen were then appointed as delegates to join the committee, as suggested by the Royal Institute of British Architects, to consider the subject of the Artistic Education of Architects: — Mr. H. Christian, V. P., Mr. Blashill, Mr. J. D. Mathews (Hon. Sec.), and Mr. Edis.

The next subject for the Class of Design will be the "Entrance door to a gentleman's house."

STATE OF ANNE HATHAWAY'S COTTAGE.

MR. JOHN ELLIS, architect, writes: — I was glad to read your remarks respecting these cottages and their present state. Will you allow me to inform your readers that I have been for some time past endeavouring to obtain the amount required to purchase this property complete, with its gardens and orchard, and to remove the modern work, as far as possible, attached to the three cottages, and by so doing restore it to one house, as it was originally built. I should be happy to receive and acknowledge any subscriptions for this object.

TELEGRAPHIC PROGRESS: THE NEW ATLANTIC CABLE.

SEVERAL gentlemen were lately invited by the directors of the Telegraph Construction and Maintenance Company to inspect the process of manufacturing the new Atlantic telegraph cable, now being made by them at the Gutta Percha Works, City-road, for the Atlantic Telegraph Company. Among those who accepted the invitation were the Marquis of Tweeddale, Professor Wheatstone, and others. One of the improvements in the cable is in the mode in which the gutta-percha coating is applied. Some time ago Mr. Chatterton discovered and patented a compound that is said to have the property of causing the coatings of gutta percha to adhere firmly, without the injurious use of naphtha, so as to form a completely solid core. The wires having been formed into a strand, and six wires being twisted round a central one, they are passed through a vessel containing Chatterton's compound, and are then covered with their first coat of gutta percha, about the eighth of an inch thick. After having been examined, by hydraulic pressure and by hand, the core receives another coat of Chatterton's compound, and then another layer of gutta percha; and so on, until it has attained the thickness of a little more than half an inch in diameter. It is then covered with ten solid wires drawn from Webster's & Horsfall's homogeneous iron, each capable of sustaining a strain of 1,000 lb., at which strain it only stretches 1 per cent. These homogeneous iron wires are surrounded separately with five strands of Manilla yarn, saturated with a preservative compound, the poisonous qualities of which have been found by experiment to prevent its destruction by insects, shell-fish, &c.; and the whole are laid spirally round the core, which latter is padded with ordinary hemp, saturated with preservative mixture. The weight of the cable, when completed, is 35¾ cwt. per mile, when weighed in air; but its specific gravity is said to be so little that it is capable of bearing eleven miles of its length when in water, a strain it is impossible it should ever be put to,—the deepest water encountered in laying the old cable being less than 2¼ nautical miles. The company have made arrangements by which they can turn out fifty miles per week of the finished cable.

SOCIETY OF PAINTERS IN WATER COLOURS.

THE "*Old* Society," as it continues to be called, has an excellent exhibition, and the public have shown their belief in this by purchasing already nearly all the pictures that form it. It is worth while noticing, as serving to indicate the amount of encouragement now given to artists, that of the 351 works sent in by the members, more than 100 were sold before they came there; two of them, namely, Mr. John Gilbert's "Battle of the Boyne," and Mr. F. W. Burton's "Meeting on the Turret Stairs," realizing 1,100*l.*, and the remainder, we may safely say, 3,000*l.* more. Of those that came in unsold, nearly 2,000*l.* worth was disposed of at the private view. At the Water Colour Institute, pictures were sold on the private view day to the amount of 1,100*l.*, irrespective of sales beforehand: and at the Society of British Artists, Suffolk-street, the purchases, we believe, amounted to about 3,000*l.* What sum of money the sold pictures now forming part of the Royal Academy Exhibition represent, it would take some time to discover. Some thousands of pounds provided by the Art-Union of London have yet to go into the market; and we have left unspoken of the British Institution, the Ladies' Exhibition, and the French Gallery.

We return to the Old Water-Colour Society's Exhibition, merely to advise our readers to go and see it. We hear talk of the establishment of a third Water-Colour Exhibition, for the works of artists who are not members of the Societies.

A GLANCE AT THE DESIGNS FOR THE PROPOSED EXETER MUSEUM AND ALBERT MEMORIAL.

THE following are simply descriptive notes of the various designs submitted in competition for the proposed Exeter Museum and Albert Memorial, containing a free library and art school. These designs are exhibiting in Paul-street:—

No. 1. "Non sibi sed patriæ" (Mr. F. Boreham, London). A freestone exterior, the angles formed by large rusticated pilasters; windows twin lights, in circular arches; a classic cornice, with large modillions; a central block at the chief entrance, terminating in a rounded hipped dome. The museum cleverly represented in an interior view.

No. 2. "The righteous shall be had in everlasting remembrance" (Mr. E. Appleton, Torquay). A red brick exterior, with white arches to the windows, circular in the soffit, and pointed above; group of sculpture on a plain slab, over the entrance: a large cornice and perforated parapet of freestone run throughout: above this curb roofs appear. The museum occupies about half area; the art school is over it, on second floor.

No. 3. "Evocatus paratus" (Mr. F. Bakewell, Nottingham). A Classic design; a series of bold, blank arches, carried on red marble columns, in the first floor, with raised panels in stone: a cornice and balustrade conceal the roofs. This design has low wings at the ends, introduced with good effect.

No. 4. "Angelo" (Mr. Henry Lloyd, Bristol). Three tall domes, the angle one coupling with another on the short elevation; the summits adorned with ironwork; the front diversified with marble shafts, in Classic style. Over the columns are circular pediments, and other circular pediments in the domes are to be filled with sculpture: the roofs between the domes are concave and hipped.

No. 5. A quatrefoil in a circle. Obtained the first (50*l.*) premium. A design in Decorated Gothic (Mr. John Hayward, Exeter). A projecting centre forms the entrance through three good pointed arches, springing from marble shafts. This centre diminishes in bulk at a steep pitch at the roof level, and forms the base of a tower, terminating in a hipped roof crowned with ironwork. In the sides of this roof chimneys appear with good effect. The ends of the Queen-street front advance slightly; and the steep pitch of the tower base is repeated with good effect in the two gables over these projections. These gables, and the front generally, are treated with a very artistic arrangement of bold trefoiled windows, showing much variety of design, the glass kept within. The material is chiefly red brick. In plan the museum is to the right of the entrance, the free library left, and art school apartments are on the left of the upper floor.

No. 6. "Alberti" (Mr. E. C. Pressland, Taunton.) A churchlike design, having at the angle a tower with open steeple, carried on coloured marble shafts. The school of art to the left, one story in height.

No. 7. "Excelsior." A plain production in red brick.

No. 8. "Argus" (Mr. W. Dey, Exeter). Elevations in three stories, arched windows alternating with Corinthian columns attached.

No. 9. "In Memoriam" (Messrs. Walter & Ridge). A red brick front; an arcade without windows on first-floor; the arched recesses filled with patterns in dark brick, and coloured decoration in the arches. A central tower and spire-like roof over the entrance. The roofs are truncated to light the museum, which extends over the principal portion, and the tower forms a lantern to the museum.

No. 10. "Utilitas." Gables varied with straight parapet, in Paul-street front; a square tower, two or three large windows, with plate tracery. A picturesque design.

No. 11. A brick design, with battlemented small turrets, at different levels; stepped gables and battlemented parapets. (Messrs. Rasch & Marsh, Chelsea.)

No. 12. "Nota Bene." A plain brick design, with pointed windows; an advanced porch, with double doorway.

No. 13. "Exonius." A plain Doric block, with tetrastyle portico of small projection and pediment on Queen-street front. One range of windows on the ground-floor, high parapet with piers.

No. 14. A triangle in a circle. Classic composition; a good perspective. A tetrastyle pedimented projection of half columns, and projections at the ends of the front, with columns corresponding from the receding intervals; small porticoes or portals, with circular pediments in advance. The upper tier of windows has rustic quoins, which are prolonged as strings in the central compartment.

No. 15. Second premium,—"Semper fidelis" (Mr. J. Philpot Jones). Bold, well-executed elevations and perspectives.

Design No. 3, the premiated design. Classic arched windows above and below, in red brick, façade relieved with freestone. High French roof in centre, and projecting frontispiece, having Corinthian pilasters coupled, connected with a cupola,—a statue in a central arch, and bust in the tympana of the arched windows.

No. 1 (same Architect). A different design, having a third story faced with a blank arcade, and high central tower and roof. The windows arranged in triplets. Here are three entrances, one to each department of the edifice.

No. 2 (same Architect). The ends of the front run up flush into towers, roofed with bold curb roofs over a series of pointed arches and shafts. The windows bold pointed arches, with circular medallions in the arches. The central portion of the front is an open arcade of pointed arches; over the centre a tower with pinnacled turrets, sailing out near its summit.

No. 16. Angel carrying device, "In Memoriam" (Mr. W. F. Cross, Exeter.) A Classic design, with much detail, Corinthian columns in marble to three pediments in the Queen-street front. This design was commended for the internal arrangement.

No. 17. "Memoria Pii Æterna" (Messrs. Foster & Roper, London). A bold Gothic design, spiritedly etched. A tower at the angle, with pyramidal roof, and smaller roof over the pilaster projections; square-headed windows effectively used. The entrance is through this tower.

No. 18. "Experientia" (Mr. H. S. Snell, London). A Classic design, a range of large arched windows, predominant with Corinthian pilasters to mark the entrance and the flank projections: a balustrade and vases form the sky-line: a large museum, roofed with glass, at back.

No. 20. A Greek cross (Messrs. R. & W. Best, Exeter). A Classic design; large square windows in the upper floor, alternating with Ionic columns attached, standing on corbels; the ground-floor windows arched; a central dome springing from a tambour of alternating arched lights and

Corinthian columns: a domed lantern surmounts the dome.

No. 21. "In spe laboro." Central tower on Queen-street front, in the Belgian style; two long hipped roofs; twin Decorated windows.

No. 22. "Experiar" (Mr. G. B. Nichols, West Bromwich). Very ornate elevations; Pointed arched windows, with medallions in tympanum to be of della Robbia ware; twisted shafts on the quoins; much surface decoration in Minton's tiles; in centre a large canopy and statue of the Prince; a bold cornice with consoles throughout.

No. 23. "Commodum Experiar" (Mr. G. R. Redgrave, Kensington). The ends of the front advanced, and formed as low-roofed Italian pavilions raised above the central mass: the wings have lanterns for lighting; a double range of windows, and much tile and coloured decoration to the projecting angular portions: the ground story has alternate courses of dark red and freestone.

SCULPTURE AND THE ROYAL HORTICULTURAL SOCIETY.

A COMMUNICATION having been received from the secretary to the Sculptors' Institute, objecting to the rules proposed for this year's exhibition, the council directed the following letter to be sent in reply:—

"I am directed by the council to inform you that they have received your letter, stating that the Institute of Sculptors decline to take part in the proposed exhibition of sculpture, and have seen a printed circular to the same effect which has been brought before them.

The council think that there must be some misunderstanding on your part, as the object of the council has been to promote the interests of all parties and the progress of the art.

The council have been given to understand that the paragraphs of their circular numbered 4 and 6 have been specially objected to by the Institute, on the supposition that the Society desired to obtain a plaster cast, with the view of divesting the sculptor of the execution of it. The council had no such wish or intention. They desired simply to have it understood, beforehand, that, in purchasing a cast, they acquired the power of having it executed in different materials, should they see fit, having in view especially the use of terra-cotta. And they would be quite content, if more agreeable to the artists, to have simply the right of turning the work into terra-cotta; the sculptor himself undertaking the manufacture of the terra-cotta specimen, or not, at his pleasure.

The council cannot suppose that the Institute set themselves against the reproduction of works in terra-cotta, which artists of the Middle Ages and sculptors elsewhere in Europe at the present time are accustomed to execute.

As respects the execution of plaster models in marble and bronze, it may remain absolutely in the hands of the artists, if they prefer it; and those who would prefer not to mention prices need not do so.

The council conceive it might be a subject for regret that in the proposed International Exhibition the Institute of Sculptors, as a corporation, should hold themselves aloof."

PARLIAMENTARY.

National Gallery.—Mr. Heygate asked the First Commissioner of Works whether the scheme for erecting a new National Gallery at the rear of Burlington House, and which was last year stated by the First Commissioner of Works to "have been for a considerable time under the consideration of the Government," had yet been approved; and, if not, to what national purposes it was proposed to devote the estate purchased for the nation in 1854, at a cost of 140,000*l.*, and now occupied by Burlington House and gardens. Mr. Cowper said the Government had determined upon proposing to Parliament an estimate for the erection of a National Gallery upon the vacant ground in the rear of Burlington House. That estimate was now in course of preparation, and would shortly be laid upon the table.

Statue of Cœur de Lion.—Mr. Hankey asked the First Commissioner why the bas-reliefs intended to be placed on the base of the statue of Richard Cœur de Lion, in Palace-yard, had not been so placed; and whether he would communicate with Baron Marochetti, and have them done at an early period. Mr. Cowper was understood to say that the matter was still under consideration.

Metropolitan Sewage.—A select committee to inquire into any plans for dealing with the sewage of the metropolis and other large towns, with a view to its utilization for agricultural purposes, has been appointed.

Public Monuments in the Metropolis.—Mr. B. Cochrane has given notice that he will, at an early day, call attention to the state of our public monuments and statues.

Law Courts.—Mr. A. Mills asked the First Commissioner of Works when the Bill for the Concentration of the Courts of Justice, which, on the 22nd of April, he stated would be brought forward in a few days, would be introduced by the Government. Mr. Cowper said the re-introduction of the Bill for the purchase of the site, of which he had charge last session, must depend upon the introduction of another Bill for supplying the funds, which would be introduced by another member of the Government. He was, therefore, unable to give the information asked for by the hon. gentleman.

BRISTOL SOCIETY OF ARCHITECTS.

THE annual meeting of the members of this Society took place on May 2, in the Architects' Room at the Bristol Academy, Mr. A. C. Fripp, vice-president, in the chair.

The Secretary (Mr. Phipps) read the committee's report, as follows:—

"The council, in this their report for the session 1863-64, are happy to state that the prospects of the society are most encouraging. During the summer of 1863 three excursions were organised. The first took place June 11th, and was attended by upwards of twenty-five gentlemen. Horfield, Almonsbury, Thornbury, Cromhall, Iron Acton, and Winterbourne were visited, and papers were read by the president and Mr. Godwin. The second excursion was to Exeter, on July 9th, where Mr. Godwin lectured upon the cathedral. The third and last excursion was to Llandaff, in August, where the cathedral was commented upon and explained by Mr. Fripp. During the winter lectures have been delivered by Mr. S. B. Gabriel, on the Pantheon; Mr. Ponton, on "Taste;" Mr. Godwin, "Sister Arts as applied to Architecture;" Mr. Phipps, "Monumental Brasses;" Mr. Crisp, "Ventilation;" Mr. Atkinson, "Fresco Painting;" Mr. Masters, "Hotels." The number of amateur members and students has been increased during the past year. It is mainly to the latter class of members that we must look for a continued vitality: every architectural student in Bristol and the neighbourhood should be urged to join our body. To aid the students we have adopted measures with a view to facilitate their preparation for the examinations organized by the Royal Institute of British Architects, which every student who aims at a status in his profession must now pass. They are happy to be enabled to chronicle the success of one of their members, Mr. W. V. Gough, who passed his examination in London with credit, and they hope that many others from this neighbourhood will follow his example, and prove as successful. Another effort that has been made for the benefit of the student members was the offering a prize for the best drawings of a chimney-piece and timber roof about to be taken down in the contemplated destruction of the Angel Inn, High-street. This prize has been gained by Mr. W. V. Gough, and a second premium has been awarded to Mr. Hannaford. The drawings are exhibited in the Architects' Room for public inspection. The artists following the sister art of painting, being members of the Academy, are also honorary members of our society. Special invitations to our meetings have been sent to them, in the hope that their presence would prove a mutual advantage. The council regret that, with a few honourable exceptions, these members have shown no sympathy, either by contributing papers or by their presence at the meetings. The report then referred to their relations with other architectural societies—the Royal Institute of British Architects and the Architectural Alliance (which embraced a number of provincial societies)—for the purpose of regulating professional practice, and raising the standard of education for the profession generally; and their labours were proving successful. The officers for the present year are:—President, Mr. P. W. S. Miles; Vice-President, Mr. S. C. Fripp; Hon. Secretary and Treasurer, Mr. C. J. Phipps, F.S.A.

On the motion of the chairman, the report was unanimously adopted.

Various votes of thanks were passed, and the Society arranged that their annual dinner should take place in Gloucester.

NEWS FROM SCOTLAND.

Edinburgh.—The seat-holders in the area of St. Mary's church, Bellevue, have long felt incommoded—especially during the prevalence of sunshine—by the strong light which shone directly in their faces through the two large windows situate on either side of the pulpit at the west end of the church. As a cure for the evil, it was lately suggested that stained glass should be substituted for the common glass with which the windows were filled; and a member of the congregation, Mr. Crabbie, Royal-terrace, having offered to subscribe 25*l.* towards the expense, a subscription was set on foot amongst the congregation, whereby a sufficient sum was speedily realised. The execution of the windows was intrusted to Mr. F. Barnett, of Leith, and they are now completed and placed in their proper position. The style in which the windows have been executed has been termed Norman-Mosaic. The borders, which are of great breadth, are Norman both in design and colour, with delicate pink leaves peculiar to that style. The Scriptural compositions in the centre of the windows, are St. Paul preaching at Athens, and John the Baptist preaching in the Wilderness. Above and beneath the Scriptural subjects are two large geometric figures of a circular form and symmetrical design. The intervals betwixt the outer borders and the leading objects are filled in with similar ornamentation, all partaking of the Norman character. To complete the general effect, it is suggested that the two smaller windows on either side of the large ones should be filled in with stained glass.——A movement is in progress for the erection of a new Episcopal church, in the south-western district of the city.——The scavengers' strike still nominally continues, but men are being brought from Glasgow and Manchester, to replace those on strike, and farmers are carrying off the refuse from the streets in large quantities. One half of the old nightmen, besides, have returned to work.

Perth.—A preliminary meeting of a private nature has been held in Dunkeld, for the purpose of considering whether a statue should be erected in memory of the late Duke of Athole. The Earl of Mansfield presided, and there was a good representation of aristocracy and landed gentry of Perthshire. The resolution agreed on did not transpire, but a public meeting on the subject will, ere long, be held. This movement is quite distinct from the proposal to place a memorial cairn on the summit of Craig-y-barns.

St. Andrews.—The contracts for the erection of a new and more commodious place of worship for the United Presbyterian congregation here, have just been entered into, and the erection is to be proceeded with immediately. The plans have been prepared by Messrs. Peddie & Kinnear, of Edinburgh, and the cost as contracted for will be about 2,100*l.* The site is at the south-west corner of the park containing Abbotsford-crescent, Hope-street, and Lockhart-place.

Forres.—The contracts have been taken for a new Episcopal parsonage and school at Forres. Mr. A. Fraser, Nairn, has the mason's work; Messrs. Smith & Son, Forres, the carpenter's work; Mr. A. D. Cameron, Inverness, the slater's work; Mr. A. Ross, Forres, the plasterer's work; and Mr. John Taylor, Forres, the plumber's work. The cost of the buildings is estimated at about 1,500*l.*

IRELAND.

THE several banking companies of Ireland seem of late to be sharing a healthy tone happily beginning to prevail: they are extending branches in many directions where such conveniences were unknown before; and in those towns where already they had made a footing they are expanding, and it is found necessary to erect more extensive and more suitable offices for their accommodation.

Among the new bank buildings the most important at present is that now in course of erection in College-street, Dublin, the central office of the Provincial Bank of Ireland. It faces a flank of Trinity College, whose colloquial denomination, for some cause now forgotten, is "Botany Bay." It is also in view from the front of the Bank of Ireland, the National Bank, and Brunswick-street, the busiest thoroughfare of the city. A crooked and intricate site, where formerly stood the Irish Institution, has called for some ingenuity and skill in the planning. The length of the principal front, facing College-street, is 77 feet; its height 61 feet. From this the bank extends backwards to Fleet-street, about 130 feet, where also is a façade of 70 feet long, having an entrance to the runners' office, manager's consulting-rooms, and private entrance to caretaker's residence.

Carving is extensively introduced in the strings and on the windows, especially on those of the first-floor. The material, on this as well as on the principal front throughout, is Portland stone. The principal front is Palladian in general character, with freedom in the treatment of the details.

Over a basement story,—bearing the character of an arcade of boldly recessed and moulded semicircular-headed arches, the principal entrance occupying the middle, at either side win-

dows, and on the left an entrance to the manager's and resident clerk's apartments,—rises a complete Corinthian order, carried up the first and second stories, having at either side pilasters, surmounted by a balustraded parapet. In the middle three intercolumniations projecting, with three-quarter columns, support a pediment, for which a group of allegorical sculpture has been designed by Mr. S. F. Lynn, of London, representing the genius of banking, seated high in the centre, receiving on the right from the British merchant the productions of commerce, supported on the background by porters and other representatives of commercial industry; on the left side approached by the representatives of agricultural and other industrial interests.

The cost will be about 21,000*l.*, and the building is to be completed within a year and a half from the present time. The architect is Mr. W. G. Murray, of Gardiner-street. Mr. Jas. Nolan is the builder.

On excavating for the basement, not a few objects of interest to the antiquary came to light; amongst them a perfect jar, pronounced to be Roman; some portions of encaustic tiles of the thirteenth century; bottles and pipes, of shape peculiar to the reign of Queen Elizabeth; a skeleton of a woman, also; and, too deep to be associated with the purposes of the institution which formerly occupied this site, was found a still, embedded in the earth.

In common with most of the insurance companies which hold offices in this city, the Edinburgh Life Assurance Company has lately put its premises through a complete course of renovation.

An entire new front has been erected to it in Sackville-street, somewhat in the style best known as Scottish Baronial. The main portions of the dressings are of Mullingar limestone, light blue in colour. The entrance is through a tasteful porch, having Doric columns introduced. An area by which the basement is lighted is screened from the street by a handsome cut-stone balustrade.

The cost, when finished, will be about 1,000*l.* Messrs. Lanyon, Lynn, & Lanyon are the architects. Mr. W. Doolin is the builder.

Belfast.—The new Presbyterian church, Shankhill-road, has been opened for public worship.

BUILDINGS IN THE CITY.

CARDINAL WISEMAN, in his lecture at the Architectural Museum, said the City produced nearly all the good architecture of this day; and that warehouses, the name of which used to be a sarcastic reproach, are now an object of art, and means of great ornament to the streets that contain them.

City architecture is, indeed, making great strides: numbers of hideous houses are now being pulled down and rebuilt—some in brick, some in stone, some, alas! in compo; but all aspiring—some justly, some vainly—to architectural beauty. Half of Lombard-street is now covered with scaffolding—not the ordinary scaffolding of upright poles with horizontal ones tied across them, but strong beams jointed together in such a way as to bear the vast weight of the masses of stone to be lifted by them. Each joint-stock company (there is very little else now) erects a pile of buildings: each employs a separate architect; and consequently all their buildings are different. This I consider to be the great impediment to good architecture in London, or rather the great impediment which prevents London being an architectural city. Variety is, of course, a great source of beauty; but when buildings stand in a line—a straight line—with no room for projections, there must be a certain uniformity to create a favourable impression on the mind of the beholder. To express my meaning more clearly: the A, B, and C Company build large offices in a street, with, say, three stories above the ground-floor, with columns and entablature to each; the cornice of the ground-floor being about 30 feet above the pavement. The X, Y, and Z Company take the three houses on the left, pull them down, build them up again with a handsome stone front; but as they wish to have more office-room, they build their commercial palace with one more story than their neighbour's, though they only build it a few feet higher. They also have an order to each story; but they have five orders to the A, B, and C Company's four, which makes their cornices abut on the capitals of the other in the lowest stories, and on about the middle of the column in the highest. As soon as this pleasing architectural contrast is shown to the good citizens of London, the Q, J, and V Company is formed, and the site on the other side of the A, B, and C Company is taken. Another magnificent pile is erected. This building has one order extending through the first and second stories, that stands on a stylobate, which is the ground-floor, and supports an attic. These three buildings occupy the entire frontage between two smaller streets. A still greater variety is produced by the different projection of the cornices, the different form of the window pediments, the doors, chimneys, &c. &c. This description may seem exaggeration, but it is the truth, nothing but the truth; but I am afraid not all the truth. Some streets, and, indeed, nearly all the streets in London, are of this patchwork. The beauty of many buildings is entirely ruined by it. In Cheapside, towards the west end of it, on the north side, two new buildings are being erected: one, I might say, is finished. The finished one is of brick, small and unassuming, yet of graceful form; and, with its high, metal-crowned roof, is a pleasing object. The other one has about five times the frontage, is much higher, is of stone, is larger in all its parts, and is as bold as its neighbour is modest. The buildings do not join. Between them is another, which is soon to come down and be rebuilt. This, I have no hesitation in saying, will be perfectly different from either of the other two; and the effect of all three will be marred, the smaller, of course, coming off the worst.

And not only do buildings spoil one another in this way, but taking them singly, we shall see how much better it would be if there were more uniformity. Look at Messrs. Sarl's place, in Cornhill, lately bought by the City Offices Company. This is a very striking building; or, rather, it is a small portion of a very striking building: it ought to be about four times the width, and then it would have a good effect. As it is, it looks over into the quadrangle of the Royal Exchange, and has a frontage of about two intercolumniations of the Exchange portico. It has a cornice which projects about one-fourth of its whole width. Look at Messrs. Moses, Son, & Davis's warehouses in Cheapside, that triumph of brick architecture: that, too, has a crowning cornice, not so disproportionate to its width as in the last-named building; but, as it abuts on a building on each side, this cornice is cut off at both ends, and may be seen in section at either end of Cheapside.

Where, in the city of London, is there such a thing as an architectural street? Moorgate-street and King William-street are nearest to it, though the hideousness of their stuccoed pilasters and window-pierced entablatures ruins them. We have innumerable fine buildings, many of them unknown, yet far superior to many in other places the occupants and uses of which make them famous. Our buildings have only one façade, instead of four, as they ought to have. Each block of buildings should be of the same general design; though, of course, much variety can be introduced. When we can effect this, then, and not before, shall we have a fine city. Then will it be one grand whole, instead of some thousands of houses.

EX STIRPE.

ST. CROSS HOSPITAL, WINCHESTER.

SIR,—In reference to a notice, in your last number, of the restoration just commenced in the church of St. Cross Hospital, under the direction of Mr. Butterfield, it is but due to inform your readers that we are indebted for this work to the munificence of an anonymous donor, "Z. O.," who has forwarded the sum of 500*l.*, to be applied, under certain conditions, to the interior restoration of the east end of this noble church. Double the amount might most advantageously be expended upon our work; and through the kindness of the bishop of the diocese and other friends, I have already raised 130*l.* in addition to "Z. O.'s" gift; but more money is greatly needed, and cannot be supplied from the funds of the hospital, which, I regret to say, owing to heavy expenses incurred in litigation some years ago, are scarcely adequate to meet the current outlay of the charity. Under these circumstances, should our case attract the notice of any of your readers, who may be able and willing to aid in this really important work, supplemental donations of any amount will be most gratefully received and acknowledged by me, in the name of the trustees.

L. M. HUMBERT, Master of St. Cross.

BATHS AND WASHHOUSES.

SIR,—Will you allow me to call your attention to the comparatively slow increase of public baths and washhouses? There are none yet in the boundaries of the city of London: those in the Euston-road have been done away with; and very many of our large towns and metropolitan districts are still without them. I am not aware that any new ones have been opened in the metropolis within the last seven years.

G. S.

MANAGEMENT OF THE INSTITUTE OF ARCHITECTS.

SIR,—Permit me to direct your attention to the "List of the Fellows of the Royal Institute of British Architects," issued by the secretaries of that body. You will observe that they have omitted my name, which will tend to injure me, as no doubt many of the Fellows will append the list in their offices during the year, and of course I shall not be known as a Fellow.

The careless manner in which the Institute has been for some time conducted has astonished me: there has been a loss of that dignity which used to characterise it: the sixpenny and shilling "Sessional Papers" have been under the mark; and altogether, in my opinion, there has been a change for the worse. If I understand the general account of receipts issued, from 1862 to 1863, the sale of the "Sessional Papers" raised 1*l.* 9*s.* 10*d.*!! Not enough to pay the wages of the boy for leaving them at the members' residences.

If the Institute on Monday proceeded to the election with my name omitted, it would be an illegal proceeding.

The short-sightedness of the Institute seems to me remarkable. When the papers read there were published *in extenso* in the journals, they were perused by thousands, not only in this country, but throughout the civilized world, and often translated into foreign languages. The Institute was benefited and respected; and the authors were repaid by the publicity thus given for the time expended in preparing their papers.

Beyond the members of the Institute (500 in all), it required, to raise 1*l.* 9*s.* 10*d.*, received during one year by the sale of two-shilling, one-shilling, and sixpenny sessional papers, about *twenty* purchasers,—and perhaps these were the authors themselves, to give to their friends.

The sooner that the Institute relinquishes its small bookselling business the better for the credit of the profession. The promoters of it may rest assured that they have signally failed.

If, by the publicity formerly given to the proceedings, one Associate only was obtained, the Institute was much more benefited than by the sale of the sessional papers during the whole year.

W. P. GRIFFITH.

ARCHITECTURE AND THE HUMAN FIGURE.

IT is surely no particular compliment to architecture to suppose that it is necessarily incomplete unless it be further adorned by painting or sculpture—one if not both of them. For entertaining a worthier opinion of architecture as an art capable of exhibiting abstract unborrowed beauty, peculiar to itself alone, I shall, I trust, be forgiven, even if by no one else, at least by you.

Until it be explained to me,—if explained it can be,—I am utterly unable to perceive any sort of affinity between skill in "figure drawing" and talent in eumorphic design, either as regards general composition or detail. Nor have I ever met with any one who has been at all more *clairvoyant* in the matter than myself. If indeed it were customary for the same individual to be employed in the double capacity of both architect and sculptor, or in the triple one of architect, sculptor, and painter, and show himself, like Cerberus, "a leash of gentlemen rolled into one," the case would be widely different from what it is at present, when, under actual circumstances, it is surely quite as much as can reasonably be expected of the architectural student if he sedulously labours to acquire proficiency and shows himself an expert in his own proper immediate walk of art. By all means allow him to *sympathise* unreservedly with other art in all its various ramifications; but he who aims at universality in literature or art is likelier than not to achieve nothing higher than mediocrity. The few exceptional instances that can be brought forward to give a colour to the contrary argument serve only to prove the rule.

Mistaken, possibly, I may be; and those who disagree with me will, of course, say, if only in self-defence, that I am most grossly so; and quietly wrapped up in what they are at liberty to call a "surtout" or "dreadnought" of self-conceit; or, if it can be fairly and clearly shown in what way a perfect knowledge of the human figure conduces in any way towards accomplishing an architect in his own quite opposite walk of art, by all means let the proof be produced. But until we obtain such proof or explanation we

surely are at liberty to suspect that one cogent reason for its not forthcoming is that it cannot be found: the door cannot be unlocked, because the key can nowhere be discovered. How exceedingly unlucky! In the meanwhile, sceptics, like myself, are left at liberty to doubt if the late *Charles* Barry would have been at all a more accomplished architect, had he, in addition to his own genius, possessed that of the gifted but also ill-starred *James* Barry.

Finally, with respect to the beneficial influence of the study of the human figure upon architects—calculated rather to dissipate than concentrate the architectural student's ideas upon his own proper art—it may be observed, that such being the real state of things it ought, as an inevitable consequence, to follow, that an anatomist or a student of the life figure ought to have the keenest perception of the beautifully proportioned in architectural design.

ART-LOVER.

NON-LIABILITY OF PAVIORS FOR ACCIDENTS TO CARELESS PASSERS-BY.

IN the Southwark County Court, on April 18th, a case (Wagstaff *v.* Booth) of considerable importance to contractors for public works, as well as to the public generally, was decided.

The plaintiff, desiring to go from Blackfriars-road to Suffolk-street, Borough, chose, as his shortest cut, to proceed along the new Southwark-street, then under formation, and fell over an inch water-pipe laid across the footway, and injured himself; and for this he claimed 50*l.* damages from the defendant, who was contractor for the paving works of the new street. The facts were not disputed; but it was proved that the accident took place in broad daylight; that the works were in active progress at the time; and that the street had not then been dedicated to the public.

The Judge was of opinion that a contractor doing work of the kind in question had a right to suppose that there would have been no public user; that there was no negligence in the use of the place in the particular way which caused the accident; and that a person who chose to walk along a way which was not complete was bound to take more than ordinary care.

The plaintiff was nonsuited, with costs.

CASES UNDER BUILDING ACT.

FINE FOR NOT GIVING NOTICE.

AT the Thames Police Court, Mr. Mitchell, builder, appeared before Mr. Partridge, to answer a summons taken out for the appearance of his partner, Mr. Reader, of Grundy-street, Poplar, and which charged him with neglecting to give notice in writing to Mr. J. H. Good, the district surveyor, of an alteration in the Guy Earl of Warwick public house, and the situation, area, and intended use of the building.

Mr. Partridge said the summons was against George Reader, and he could not recognize the gentleman before him, or hear him, unless he agreed to pay any penalty that might be imposed.

Mr. Mitchell said if his partner was fined the money should be paid.

Mr. Good said that he saw alterations going on at the Guy Earl of Warwick, under the direction of the defendant. The floor was bodily lowered, the story-posts which supported the front of the house were lengthened, and other alterations effected. They were putting a new front into the lower part of the house. He had received no notice, in writing or otherwise, of the alterations. The words of the Act were, "Shall give notice of any work."

Mr. Mitchell said the firm to which he belonged had no desire to evade the law, and submitted that no alterations had been effected, only repairs.

Mr. Good.—It is an alteration of a shop-front: the lengths of the story-posts have been increased, and the floor lowered. I have not received any notice, and I do not know whether measures have been taken for the public security.

Mr. Partridge was clearly of opinion the defendant had violated the law, and that before he commenced making the alterations in question he ought to have given notice to the district surveyor. It was of the highest importance to the public that the regulations of the Building Act should be observed. The full penalty for the omission of which the defendant had been guilty was 20*l.* He inflicted the mitigated fine of 5*l.* and costs.

CHURCH-BUILDING NEWS.

North Pickenham (*Norfolk*).—The church in this parish having long been in an unsound state, it was determined to rebuild it, and the work was commenced in May last year. On the 14th April, it was brought to a completion by the consecration of the new fabric. The nave, aisle, and chancel have been entirely rebuilt. The chancel had been previously shortened, but is now restored to its original length. The Decorated style of architecture has been adopted from the plans of Mr. D. Male, of Kensington, architect, whose design has been carried out by the contractor, Mr. William Brown, of Lynn. The new roofs are of deal, stained and varnished. The pillars and arches are also new, of Casterton stone. The windows are filled with Powell's tinted glass, having a border of leaves. The seats are of English oak, open throughout, and 2 feet 10 inches in height. The pulpit and lectern are enriched, the former with carvings by Rattee, of Cambridge; the latter with foliage, the work of Mr. Sporle. The floor of the chancel is of Minton's encaustic tiles. Provision has been made for lighting the church for evening service, by means of three coronæ and other appliances in polished brass, provided by Messrs. Hart, of London.

Derby.—The chief stone of St. Andrew's Church, Litchurch, has been laid. The edifice is larger than most of our modern parish churches, and consists of a nave and chancel with north and south aisles, and a steeple at the west end of the north aisle of the nave. The chancel has a semi-octagonal apse projecting beyond the east walls of the aisles, and the south aisle of the nave has a porch in its western bay. There are three entrances to the church, viz., a double doorway in the west wall of the nave, the doorway in the south porch, and a small doorway for the clergy at the east end of the south aisle of the nave. The tower has four stages connected by a circular stone staircase in the east wall. The tower abuts on the boundaries of the site at the junction of Hulland-street with the London-road. It thus does not encroach on the body of the church, but occupies what would otherwise have been rather an awkward corner of waste ground. The church is being built from the designs of Mr. George Gilbert Scott, by Messrs. Thompson & Fryer, of Derby, under the superintendence of Mr. W. Conradi, the resident clerk of the works. The amount of the contract is about 9,400*l.* The schools are two stories high, and built of brick, with stone dressings to the windows, doors, buttresses, gables, and chimneys: the roofs are covered with tiles, and there is a small bell-gable on the gable of the south front. These schools, &c., were built by Mr. Wood, of Derby, from designs by the Rev. S. Andrew, of Lichfield.

Collyhurst.—The Albert Memorial Church in Queen's-road, Collyhurst, the erection of which is just completed, has been consecrated by the Bishop of Manchester. The foundation stone was laid on the 6th of June, last year. The site for the church, as also for the schools adjoining it, erected by Mr. R. Gladstone, was the gift of Sir Oswald Mosley. The church consists of the nave, 90 feet 9 inches, by 46 feet 4 inches; chancel, 20 feet 3 inches by 21 feet 6 inches, with organ chamber on south side and vestry on north side. The style is Early Decorated. At the west end are three entrances, one through a large doorway under the centre window, and one through the lower and corresponding one on the other side; but these latter will be used chiefly as entrances to the gallery, which is proposed to be erected at some future period. There is also an entrance under the transeptal tables on the north side. The building is of seconds bricks, relieved with bands of blue Staffordshire bricks and white headers. The dressings are of Hollington stone. The slating is in alternate bands of different tints. The roof is in one great span, open to the ridge 48 feet from the ground. The absence of columns gives an uninterrupted view to persons in all parts of the edifice. The seats are open benches with inclined backs, and divided by a centre and two side aisles, paved with Minton's encaustic tiles, of a plain character. The tiling to the chancel is more elaborate. The seats for the choir in the chancel are of pitch pine, as well as the reading-desk and the pulpit. The vestibules are arranged so as to prevent as much as possible all draughts. The lighting is by means of three sun-lights in the nave and two standards in the chancel, by Mr. Heyworth, of Manchester; and the heating has been provided for by Messrs. Haden, of Trowbridge. The tower, at the north-west angle of the building, is in three stages, terminated with a spire, surmounted with a vane, the top of which is 130 feet from the ground. The church and schools form an ecclesiastical establishment of considerable extent. The original estimate (taken by Messrs. Clark & Jones, builders), for the church was 3,912*l.*, and has not been exceeded; but the committee have expended some 300*l.* additional in tiling and stained-glass windows of elaborate design, and great richness in colour, executed by Messrs. Edmundson & Son, of Manchester, to the memory of the Prince Consort. The church has accommodation for 665 persons, of which 233 are free. The edifice has been designed and carried out under the superintendence of the architect, Mr. John Lowe, of Manchester.

Bradford.—A few years ago, the churchmen of Bradford determined to erect ten new churches, in five years, in various parts of that rapidly-extending borough. Five of these churches have since that time been built and consecrated, and the sixth, All Saints', at Horton-green, has now also been consecrated. All Saints' Church is in the Early Decorated style, and built at the sole cost of Mr. Francis Sharp Powell, of Horton Hall, M.P. for the borough of Cambridge. The building, though not yet completed, was commenced in November, 1861, and has so far progressed as to admit of its being opened for public worship. The cost will be about 15,000*l.* Schools, built in a style to correspond with that of the church, have also been built on the adjoining ground, at the expense of Mr. Powell. The plan of the church consists of nave with aisles, north and south transepts, apsidal chancel, with organ-chamber and tower on the south side, and vestry on the north. The aisles are entered by north and south porches, and the south transept by a doorway through the ground story of the tower. The dimensions are:—Nave: length, 98 feet 6 inches; width, 23 feet; aisles, length, 79 feet; width, 11 feet 6 inches. Transepts: total width, north to south, 79 feet; width, 19 feet 6 inches. Chancel: length, 38 feet; width, 22 feet. Vestry: 12 feet by 15 feet. Tower: 21 feet square outside. Height of tower and spire, 200 feet. Height of nave ridge, 60 feet; of chancel, 54 feet; of transepts, 43 feet 6 inches. North and south porches, about 10 feet square inside. The great bulk of the stone has been obtained from the Calverley Wood quarries, worked by the contractor, Mr. Thornton; that used for the inside carving from Sturdy Bank, near Harewood. All the walls inside are of cleansed stone. There is seat room in open pews for over 900; and, including chairs and loose benches, for more than 1,000 persons. The architects are Messrs. Mallinson & Healey, of Bradford. The original design, according to the local *Observer*, owes much to the late Mr. Healey. The plans of the father have, with considerable modifications as to detail, been carried out by his sons. Mr. I. Thornton, of Bradford, has been the contractor for the whole of the works. Mr. D. Kershaw is the clerk of the works. The window-glass has been furnished by Messrs. Heaton, Butler, & Bayne, of London; the carving by Mr. W. Farmer, of London; the metalwork by Mr. Skidmore, of Coventry; the heating apparatus by Mr. Byrne, of Bradford; the tiles by Messrs. Maw & Co., of Broseley; and the fittings for the altar, &c., by Mr. French, of Bolton-le-Moors.

Sheffield.—Wath Church has had the whitewash removed from a few of the pillars, and the stonework restored to its original condition. This restoration has led to an antiquarian discovery. The whole of the interior of the church has, at one time, been painted—at what date it is not easy, it is said, to define. The first, in order of time, consisted of animals, flowers, and human figures. Immediately over that there has been a coat of whitewash; and then over that a coat of painting—water colour. The capitals were painted red, and the arches above them red also. Above this there has been another coat of various colours, and above all several coats of plain colouring. The theory amongst "the oldest inhabitants" is that a certain vicar of Wath fancied the people attended more to the gay walls of the church than to him, and so he ordered these paintings to be obliterated. Possibly the second coating of paint was put on during the temporary revival of Popery in Queen Mary's reign, and was in turn covered by the Reformed clergy.

Miscellanea.

SOCIETY OF ARTS.—On Wednesday evening last, a paper on "The Testing of Chain Cables," by Mr. Frederick Arthur Paget, C.E., was read. We shall return to it for some portions interesting to our readers.

ARCHITECTURAL EXHIBITION, CONDUIT-STREET. On Tuesday evening, Professor Donaldson delivered a lecture "On the Military Architecture of the Middle Ages." The lecture was copiously illustrated by drawings of Raglan, Beaumaris, Chepstow, Conway, York, Hever, Alnwick, and other castles; and the lecturer gave a full and interesting account of the history of the several structures, commenting on their constructive peculiarities and characteristics. Little publicity was given to the commencement of the series, or the attendance would have been more numerous than it was.

GRAPHIC SOCIETY.—At the concluding *conversazione*, to be held on Wednesday, the 11th inst., the Committee expect contributions of the works of their late colleague, Mr. Augustus Egg, A.R.A., and of the late Mr. William Hunt.

SALISBURY CATHEDRAL.—The following letter from Mr. Scott in reference to an article in the *Times*, appeared in that journal on Monday:—"May I take the liberty of saying one word in correction of a point in your interesting notice of the state of the tower of Salisbury Cathedral? The point I refer to is this,—that we have no intention of touching the piers which carry the tower, but only of strengthening the feeble and shattered lantern story above them; and that on the principle of adding strength, while we scrupulously avoid the smallest disturbance of the existing structure."

THE NEWCASTLE HIGH LEVEL BRIDGE.—From the evidence of the engineer-in-chief of the North-Eastern Railway Company, given before the Committee of the House of Commons on the Newcastle and Gateshead Gas bill, we learn that the lower roadway of the high-level bridge, which the company were so reluctant to make, cost them about 50,000*l.*, and yields them a revenue in tolls of about 4,000*l.* a year. It pays, therefore, subject to deduction for collection and maintenance, an annual interest of 8 per cent., a profit which the shareholders would doubtless be glad to reap from the remaining portion of their vast property.

GATE CLIP LOCK.—An extremely simple tumbril latch lock for road, railway, and field gates, patented by Dr. Spratt, seems to offer security against the straying of cattle, and the accidents occasioned thereby on lines of rail. The invention is equally useful on all swing-gates. Where it is desirable to open the thoroughfare and stop access to the rail, the gates may clip across the line, as in this case the posts, at the angles of a square, being equidistant, the latches and fitments will correspond, and therefore lock. The whole mechanism consists of two tumblers, which move inwards, and up to a common centre, and catch the latch between them in a firm grip.

BRIGHTON.—The contractors for the Albion Outfall have again commenced operations upon it. The piping was only laid down to a certain distance, and the process of floating it out was suspended, owing to the favourable season having passed by. Steps are now being taken for laying down the remainder of the piping, not, however, by floating it out, but by erecting a stage over the bed, which will be dredged for it, and from which stage the pipes will be let down into the sea. The making of this stage is now being proceeded with.——Active operations have been commenced in connexion with the erection of the new pier opposite Regency-square.——The Works Committee of the town council have received the following tenders for widening King's-road and Junction-road, in conformity with plans prepared by the borough surveyor, Mr. P. C. Lockwood, C.E.:—

Anscombe	£12,924
Reynolds	11,513
Chappell (Steyning)	11,473
Cheesman & Co.	10,915
Scrivener & White	10,058
Simms & Marten	9,870
Nowell & Docwra	9,499
Sawyer (Dulwich)	9,484
Bennett & Co.	9,339
Aird & Son	9,258

Messrs. Aird & Son's tender was accepted by the committee.

REBUILDING AND REPAIRING OF CATHEDRALS.—According to a Parliamentary return recently issued, 500*l.* were granted for the restoration of York Minster in 1841 by the Ecclesiastical Commissioners, and 2,938*l.* 18s. 10d. for Ripon Cathedral, in 1842. Under the authority of Orders in Council of the several dates given below, the following chapters transferred to the Ecclesiastical Commissioners their corporate estates, in consideration of the annexed sums:—Bristol, June 7, 1862, 6,000*l.*; Canterbury, August 6, 1862, 20,000*l.*; Carlisle, November 10, 1852, 15,000*l.*; Salisbury, October 11, 1861, 10,000*l.*; Winchester, April 16, 1861, 5,000*l.*; and Worcester, November 29, 1859, 15,300*l.*; total, 71,300*l.* With respect to the Chapter of Worcester, it is noted that "the commissioners, being possessed of a lease for lives under the chapter, agreed to pay to the chapter for the addition of two lives, in the place of two that had died, a fine of 5,160*l.*, the chapter undertaking that the whole of it should be appropriated towards the repair of the fabric."

BETHNAL-GREEN.—Another death from *starvation* in this parish,—Elizabeth Bendall, aged 73. The verdict of the jury was, "That deceased was found dead from the mortal effects of bronchitis; and that her said death was accelerated by want of nourishment, clothing, and warmth." Surely some fuller inquiry into the management here is necessary.

THE NEW FREEMASONS' HALL.—We learn from the daily papers that the ceremony of laying the foundation-stone of the New Freemasons' Hall took place on Wednesday, the 27th ult., on the site of the building in Great Queen-street, Lincoln's-inn-fields, in the presence of the Grand Master, the Earl of Zetland, and a numerous body of the craft.

SOCIETY OF ARTS PRIZES.—A correspondent writes,—"Will you kindly hint to the Council of the 'Society of Arts' that much dissatisfaction is expressed by the successful competitors in the late 'Art-workmen's' Competition at the non-delivery publicly of the prizes; and that this *second* delay is calculated to destroy confidence and materially to affect the success of future competitions." Some of the prizes have been delivered privately, we believe.

NORTHERN ARCHITECTURAL ASSOCIATION.—The quarterly meeting of the Northern Architectural Association, was held at the Old Castle of Newcastle, on Tuesday evening, 26th ult., Mr. Pritchard in the chair. The principal business before the meeting was the discussion of the sub-committee's report on the subject of a universal system of measuring.

THE NATIONAL PORTRAIT GALLERY.—On Saturday was issued the seventh report of the trustees of this gallery. Among the donations since the last report are, a marble bust, by Behnes, of Dr. Arnold, of Rugby, presented by the Bishop of Manchester; and a portrait of Woodfall, the Parliamentary reporter, 1745-1803, painted by T. Beach, a pupil of Sir Joshua Reynolds, presented by Mr. H. D. Woodfall. The purchases made by the trustees now amount to 118. They have been increased since the last reports by portraits of Charles Churchill, Queen Catherine of Arragon, Sir Nicholas Bacon, Thomas Stanley, the historian of philosophy; Lord Heathfield, Archbishop Laud, and the Earl of Mansfield. The gallery, instead of being open from twelve to four, will henceforth be open from ten to five, between Easter and Michaelmas, and from ten to four between Michaelmas and Easter, the days of admission being Wednesdays and Saturdays, as before. The trustees renew their protest against the inadequacy of the space at their disposal.

THE TEMPORARY BRIDGE AT BLACKFRIARS.—It was an ingenious device to construct this bridge in two floors or stories, the necessary accommodation for carriages and foot passengers being thereby secured at the least expenditure of space and material. The *City Press* gives some details. The bridge is 990 feet in length, and the upper story is 16 feet above that designed for carriages. The upper story will accommodate foot passengers by means of two footways, each 9 feet in width: the footways of old Blackfriars are only 7 feet wide. The lower floor is 26 feet in width, which is the same width as the roadway of the old bridge. Its foundations are substantial. The lower piles are 18 feet apart, and are driven 10 feet into the bed of the river; and the transverse piles which carry the roadway are 7 feet apart from centre to centre. These parts are braced together with great firmness, so that the vibration common to wooden bridges will be reduced to a minimum. The openings for the river are each of 70 feet span, formed of iron girders 6 feet in depth. As regards the gradients of this bridge, horses have the best of it. The incline of the old bridge is 1 in 24, but for the roadway of the wooden-bridge the same gradient as that of the new Blackfriars-bridge has been adopted, namely, 1 in 40; but, as the footway for passengers is carried 16 feet above the roadway, pedestrians are here placed at a considerable disadvantage: they will, in fact, have to ascend gradients of 1 in 10 at the approaches; but, that difficulty over, the remainder of the journey will be almost a dead level. The first pile of this bridge was driven on the 11th of August last year, and the bridge was finished in a period of less than eight months. The number of piles which support the bridge is 300, and the depth of the timber below high-water mark is 40 feet. Messrs. Rennie & Logan are the contractors, and Mr. Scott is the superintendent-engineer.

BEDFORD SEWERAGE.—The town council having examined the schemes of proposed sewerage works for the Borough, prepared by Messrs. Haywood, Lawson, Stephens, & Usher (the engineers invited to submit plans), have selected the scheme of Mr. John Lawson.

MARSHLAND, SMEETH, AND FEN DRAINAGE.—The Marshland, Smeeth, and Fen Commissioners have laid the first stone of the new sluice now erecting for the drainage of that district. Mr. William Plews is the engineer; and Mr. William Derisley Harding, contractor.

NEW DOCKS AT NEWPORT.—The promoters of the new dock on the east side of the Usk have secured fifty acres of land from Colonel Wood, at a moderate price; but as this is not considered sufficient, negotiations are pending for a further purchase. Messrs. Lavin & Ward, contractors, have visited the port, with the intention of making arrangements for the construction of a new dock on the west side of the Usk, and have expressed a favourable opinion as to the practicability and paying nature of the undertaking.

COMPENSATION FOR LOSS OF MEDICAL PRACTICE.—On Saturday, in the Lord Mayor's Court, a claim was made by Mr. Hutchinson, a surgeon, of Bridge-street, Blackfriars, against the London, Chatham, and Dover Railway Company, for compensation in respect to the loss of his practice and house, owing to the building of the Farringdon-street Extension. The claimant said he had lived thirty-five years in his present house, and he could find no other house suited to him, consequently he had been obliged to move up to Woburn-place. After the case had proceeded some time, an arrangement was come to by awarding the claimant 2,500*l.*

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—Dr. Christopher Dresser delivered a lecture "On Colour: Its Harmonies and Contrasts." He gave in a succinct form a history of the discoveries as to the nature of colours and their progressive combinations, beginning with the three primitive colours, red, blue, and yellow, and then going into their combinations in the secondary and tertiary classes; showing also how by certain rules of proportion, certain combinations of colour, primary, secondary, and tertiary, brought into juxtaposition, would produce a harmonious effect or the reverse. A discussion followed, in which Mr. Hurlstone (who occupied the chair), Mr. H. Tidey, Mr. Dutton, Mr. Wood, and others took part.

ACCIDENTS.—At Leeds, a portion of a house in St. Mark's Villas, Woodhouse-lane, lately fell to the ground, owing to the foundations having been undermined. Happily premonitory symptoms were observed, and thus measures were taken not only to save the property—amongst which was a number of paintings—but to guard against personal injury.——The weights of the Yeovil new town clock, about midnight on Sunday before last, fell with a noise which alarmed the neighbourhood of the town hall. It appears that the weights were suspended by a rope about three-eighths of an inch in thickness—much too small, it is now evident, although the contractors allege that it is of the usual description. The rope broke and the weights fell, breaking through the ceiling of the town-hall, and partially through the floor of the hall, one of the weights having protruded through the ceiling below the floor. The affair has created quite a commotion in the town.

MONUMENTAL.—The first stone of the Yarborough monumental arch has been laid at Kirmington, by the Countess of Yarborough. After the trowel, mallet, and level had been well applied, her ladyship spoke a few sentences warmly expressive of gladness in being solicited to perform this interesting duty, and of all good feeling befitting the occasion. Mr. Flockton, of Sheffield, the architect; and Messrs. Waring, the contractors, were present. A brass plate bears the following inscription, written by Sir Charles Anderson, Bart. (chairman of the committee):—"This foundation stone of an arch erected by the tenants and friends of Charles, second Earl of Yarborough, was laid at their request by Victoria, Countess of Yarborough, April 23rd, 1864."——The sub-committee of the Rowland Hill statue having recommended that an application be made to Mr. Hollins to furnish a design or model, and an estimate of the cost; and that the selection of a site be postponed for the present; this has been unanimously approved, and the sub-committee instructed to confer with Mr. Hollins. The subscriptions exceed 1,200*l.*

DISCOVERY OF ANTIQUITIES AT CHARLTON.—As the workmen in the employ of Mr. S. C. Tucker, builder, were lately excavating the ground at the corner of Bridge-street, Charlton, they came upon a piece of pottery. Mr. Tucker, being on the spot, caused the surrounding earth to be carefully removed, and the result has been the discovery and preservation of some very interesting Roman remains, buried at a depth of 10½ feet from the surface.

TENDERS.

For rebuilding Bull Wharf, Queenhithe, for Messrs. Kibbel & Shepherd. Mr. E. l'Anson, architect:—

Oxford	£9,550 0 0
Lawrence	9,133 0 0
Myers	9,069 0 0
l'Anson	8,880 0 0
Macey	8,724 0 0
Ashby & Horner	8,687 0 0
Rider	8,580 0 0
Downs	8,493 0 0
Brown & Robinson	8,450 0 0
Conder	8,382 0 0
Coleman	8,159 0 0

For improved dwellings for the London poor in Farringdon-road, Clerkenwell. Mr. Horace Jones, architect:—

Foster	£41,600 0 0
Higg	40,500 0 0
Simmonds & Merton	39,987 0 0
Sawyer	39,982 0 0
King	39,777 0 0
Colls & Co.	38,744 0 0
Hart	38,666 0 0
Patman & Co.	38,500 0 0
Perry & Co.	38,400 0 0
Palmer	38,300 0 0
Gammon	38,220 0 0
Rudkin	38,200 0 0
Macey	37,840 0 0
Rider	37,717 0 0
Scrivener & White	37,500 0 0
Rowe	37,500 0 0
Hill & Keddell	37,050 0 0
Carter & Sons	36,938 0 0
Myers & Sons	36,900 0 0
Brown & Robinson	30,583 0 0

For house at Shooter's Hill, for Mr. A. E. Wilde. Messrs. Morphew & Aldridge, architects. Quantities not supplied:—

Macey	£2,753 0 0
Allen	2,667 0 0
Rudkin	1,800 0 0

For the erection of mansion, &c., in Tisbury stone, at Hightrees, near Reigate, for Mr. Waterlow. Messrs. Hunt & Stevens, architects:—

		If in Portland stone, extra.
Carruthers	£9,452	£402
Hardiman & Sandon	9,175	414
Myers	9,150	398
Mansfield	9,143	430
Robinson	9,128	500
Smith & Co.	9,040	267
Lawrence, Brothers	8,963	300
Brass	8,883	269
Thornton	8,795	295
l'Anson	8,650	400
Jackson & Shaw	8,400	380

For building four houses and shops, in Caledonian-road, exclusive of digging and drains, for Mr. Matthew Hitchcox. Mr. D. Gylby, architect. Quantities supplied by Mr. D. J. Brown:—

	Without Shop Fronts.	Shop Fronts.	Totals.
Harvey	£1,820 0 0	£297 0 0	£2,117 0 0
Thompson	1,828 0 0	275 0 0	2,103 0 0
Richards	1,818 0 0	250 0 0	2,068 0 0
Carter & Sons	1,836 0 0	240 0 0	2,076 0 0
Kent	1,785 0 0	235 0 0	2,020 0 0
Allen	1,745 10 0	226 0 0	1,971 10 0
Madgin	1,627 0 0	220 0 0	1,847 0 0

For alterations to No. 80, Newgate-street, E.C. Mr. C. J. Phipps, architect. Quantities supplied by Messrs. Corduroy:—

Contract 1.

Tarrant	£567 0 0
Greenwood	548 0 0
Kiddle (accepted)	517 0 0

Contract 2.

Panter	£336 0 0
Yardley	322 15 0
Over (accepted)	321 10 0

For a cottage at Nechells, near Birmingham, for Mr. J. Knight. Mr. F. B. Osborn, architect:—

Jeffrys & Pritchard	£185 0 0
Barnsley & Sons	178 0 0
Whiston	172 0 0
Smith	150 0 0
Parker (accepted)	137 0 0

Accepted for villa residence on Lansdown, Bath. Mr. C. J. Phipps, architect. Quantities supplied by Mr. H. Crisp:—

Mason's work.

Maun	£900 0 0

Carpenter and joiner's work.

Matthews & Hewish	£390 0 0

Slater and plasterer's work.

Wilkins	£142 0 0

Plumber's work.

Trewolla	£78 0 0

Painter and glazier's work.

Bussell	£71 0 0

Smith and ironmonger's work.

Glass & Gould	£26 0 0

For house at Northumberland Park, Tottenham, for Mr. Chamberlain. Mr. T. J. Hill, architect:—

Perry	£770 0 0
Henshaw	739 0 0
Cook	657 0 0
Larke (accepted)	584 0 0

For the erection of a new corn exchange, St. Ives, Hunts. Mr. R. Hutchinson, architect:—

Allen & Smith	£2,177 0 0
Cock & Jenkins	1,790 0 0
Saunders	1,685 0 0
Thackeray & Son	1,527 0 0
Thompson	1,520 0 0
Allpress	1,433 0 0
Bunting & Son	1,409 0 0

For alterations and additions to farm house, Rusper, Sussex, for Mr. George Knight. Mr. Frederick J. Dibble, architect:—

		For Weathertiling and Stucco to Old Part.
Lynn & Dudley	£690 0 0	£13 10 0
Gates	658 0 0	27 0 0
Burstow & Sharp	648 0 0	25 10 0
Hamblin	595 0 0	10 17 0

For building a pair of semi-detached cottages at Ripon-road, Potteries Estate, near Shooter's Hill, Kent, for Messrs. S. & D. M'Carthy. Messrs. W. Gosling & Son, architects. Quantities not supplied:—

Sonnex	£475 0 0
Lidbetter	440 0 0
Woodford	419 5 0
Thompson	415 0 0
Hubbard	408 0 0
Sutton (accepted)	390 0 0

For building a pair of semi-detached villas at Bexley Heath, Kent, for Mr. S. G. Richmond. Messrs. W. Gosling & Son, architects. Quantities supplied:—

Richardson	£1,532 0 0
Holmes	1,502 0 0
Sutton	1,475 0 0
Rudkin	1,325 0 0
Donnelly	1,315 0 0
Penlington	1,298 0 0
George	1,286 0 0
Moucomb	1,282 0 0
Lidbetter	1,090 0 0
Hubbard	1,082 0 0
Thompson (accepted)	1,050 0 0

For repairs to houses in Whitechapel-road:—

Nutt & Co.	£365 0 0
Case	327 0 0
Haynes	250 0 0
Emese	210 0 0

For pulling down sundry buildings, and erecting five cottages, for Mr. Richard Terry, at Totton, near Southampton:—

James Toogood (accepted)	£370 0 0

For proposed additions to Tudor Lodge, Wimbledon Park, for Mr. Francis Martin. Mr. Alfred Wright, architect:—

Fish	£1,450 0 0
Longmire & Burge	1,394 0 0
Adamson & Sons (accepted)	1,275 0 0

For new infant school and residence, St. Ann's Hill, Wandsworth, Surrey. Mr. Joseph Peacock, architect. Quantities supplied by Mr. Northcroft:—

Lathey, Brothers	£1,090 0 0
Nicholson & Sons	936 0 0
Easton	918 0 0
Adamson & Sons	893 0 0
Carter	885 0 0

For the Hockley Bolt, Screw, and Rivet Works, Birmingham, for Messrs. Charles and William Barwell. Mr. Edward Holmes, architect. Quantities supplied:—

Branson & Murray	£3,720 0 0
Partridge	3,500 0 0
Hardwick	3,465 0 0
Mathews	3,390 0 0
Briggs & Son	3,380 0 0
Jones	3,350 0 0
Horsley, Brothers (accepted)	3,333 0 0

For stores for arms, &c., of 2nd Somerset Militia, Bath, with residences for the permanent staff. Mr. C. J. Phipps, architect. Quantities supplied by Mr. H. Crisp:—

Bladwell & Ambrose (accepted)	£5,517 0 0
Supplementary contract for additional work	300 0 0

For two semi-detached villas, in the Hagley-road, Edgbaston, near Birmingham, for Mr. H. Manton. Mr. Frank Barlow, Osborn, architect:—

Barnsley & Sons	£2,080 0 0
Barker	2,030 0 0
Bennett	2,015 0 0
Smith & Sons	1,970 0 0
Jeffreys & Pritchard	1,965 0 0
Partridge	1,910 0 0
Parker (accepted)	1,860 0 0

For building two villas at Croydon, for Mr. F. J. Campbell. Mr. R. T. Woodcock, architect:—

King, Burton, & Co.	£1,740 0 0
Mason	1,676 0 0

For alterations and repairs to No. 7, Portman-street, Portman-square. Messrs. New & Cumings, architects:—

Butcher (accepted)	£330 0 0

For new shop front to 132, Oxford-street, for Mr. Lewis. Messrs. New & Cumings, architects:—

Drew	£338 0 0
Yardley (accepted)	240 0 0

For the erection of parsonage house, St. Paul's, Lorimer-square. Mr. H. Jarvis, architect:—

Garland & Fieldwick	£2,470 0 0
Marsland & Son	2,387 0 0
Sawyer	2,346 0 0
Thompson	2,270 0 0
Kent	2,215 0 0
Henshaw	2,214 0 0
Tarrant	2,048 0 0

For building a pair of residences at Shepherd's Bush, for Mr. Edwards. Mr. J. Dean, architect:—

Rickets	£2,564 0 0
Kirk	2,540 0 0
Macey	2,484 0 0
Adamson	2,288 0 0
Lamble	2,277 0 0
Bray	1,937 0 0

For work at the Cross Keys, Blackfriars-road, for Mr. Jonathan Wadden:—

Sellick	£705 0 0
Warne	725 0 0
Eatan & Chapman	610 0 0
Langmead & Co.	590 0 0
Nightingale	514 0 0
West (accepted)	499 0 0

For painting the outside of the Hackney Union:—

Young	£196 0 0
Burtwell	140 0 0
Robins	140 0 0
Harrison	110 0 0
Skinner	88 10 0

For buildings at Bermondsey. Mr. Joseph Peacock, architect:—

Wells	£9,297 0 0
Lugg	9,306 0 0
Carter & Sons	8,875 0 0
Piper & Wheeler	8,753 0 0
Condor	8,387 0 0
Macey	8,139 0 0

For building a villa residence in Patshul-road, Kentish Town, for Mr. J. J. Taylor. R. H. Moore, architect:—

Beckwith	£630 0 0
Stevenson	585 0 0
Noone	550 0 0
Rudkin	550 0 0

For alterations, additions, and shop fronts to Nos. 1, 9, and 13, College-street, Camden Town, for Mr. Dunsmore. Mr. R. H. Moore, architect:—

Bott	£526 0 0
Rudkin	483 0 0

For rebuilding part of mansion at Broomhill Bank, near Tonbridge Wells. Mr. Wm. Reddall, architect:—

Dove, Brothers	£2,915 0 0
Lawrence & Sons	2,872 0 0
Mansfield & Son	2,735 0 0
Conder	2,687 0 0
Macers	2,350 0 0

For detached house at Snaresbrook. Mr. Wm. Reddall, architect:—

Killby	£929 0 0
Case	927 0 0
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	Church.	Tower and Spire.
Ife	£3,447 7 0	£700 0 0
Godfrey	3,276 0 0	393 0 0
Hardwick	3,270 0 0	389 0 0
Jones	3,250 0 0	400 0 0
Fern & Hextal	3,223 0 0	373 0 0
Mathews, Wm.	3,175 0 0	375 0 0
Mathews, E.	2,923 0 0	430 0 0
Burkitt	2,834 0 0	450 0 0
Thompson	2,906 0 0	297 0 0
Lilley & Elliott	2,879 0 0	290 0 0
Timms	2,795 0 0	360 0 0
Simpson & Lynam	2,800 0 0	340 0 0
Ratcliffe & Son*	2,690 0 0	295 0 0
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TO CORRESPONDENTS.

Measurement.—J. Q. M. says,—"Will one of your correspondents kindly point out how to ascertain the numerical contents of a *circular* stack of pantiles?"

F. G.—J. A. P.—*Utilitas.*—F. C.—M.—E. T. F. (several suggestions have appeared in recent numbers of the *Builder*).—J. L. B., St. Paul's (letter does not carry the matter any further).—E. A.—C. S. H.—J. G.—C. J. P.—F. W. C.—F. B. O.—E. H.—Subscriber.—E. A.—W. S.—T. C.—H. B. G.—Rival.—Archi.—Museums (several letters have reached us too late for consideration).—W.

We are compelled to decline pointing out books and giving addresses.

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NOTE.—*The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.*

ADVERTISEMENTS.

THE ART-JOURNAL for MAY (price 2s 6d.) contains three Illustrations on Steel, viz.:—"Puck and the Fairies," by G. Lizars, after R. Dadd; "View of Orvieto," by S. Bradshaw, after J. M. W. Turner, R.A.; "The Hunter" (H.R.H. Prince Arthur), by E. W. Stodart, from the statue by Mrs. Thornycroft. The literary contributions include:—"Wedgwood and Etruria," by Llewellynn Jewitt, F.S.A. illustrated; "The Works of W. Mulready, R.A.;" "A Walk in South Wales," illustrated by Birket Foster; "History of Caricature and of Grotesque in Art," by T. Wright, illustrated; "Fresco Painting;" "Photo-Sculpture," illustrated; "The Exhibition in Dublin;" "New Fresco by R. M. Ward, R.A.;" "Monument to H.R.H. the late Prince Consort;" "British Artists: Charles Baxter," by James Dafforne, illustrated; "Almanac of the Month," illustrated from Designs by W. Harvey; "Art-Work in May," by the Rev. J. G. Wood, M.A.; "Exhibition of the Society of British Artists," &c. &c.

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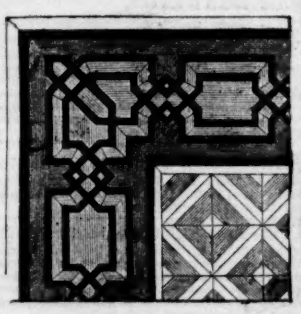

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